بسم الله الرحمن الرحيم

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Department of Banking & Finance

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The Effect of Capital Structure Changes on Firm Value under Different Risk Levels: Evidence from Jordanian Market

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By

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Mohammad Qassim Mohammad AL-Momani

Supervisor

Dr.Kamal Al-Qudah

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The Effect of Capital Structure Changes on Firm Value under Different Risk Levels: Evidence from Jordanian Market

By:
Mohammad Qassim Mohammad AL-Momani

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Thesis Committee:

Dr. Kamal Al-Qudah .... Chairman

Prof. Ali Magableh Ali H. Magableh .... Member

Dr.Moh'd Ajlouni .... Member

Dr. Mohammad AL-Alami .... Member

2006

الإهداء

إلى من دفعني للكفاح

وكانَ محفزا لي لأبلغ النجاح

إلى من لا يعرف إلا الحب و العطاء

إلى والدي العزيز

إلى الرمز و الإنسانة الأعز

إلى القلب إلى قرة عيني

إلى موطن الأمان و إلى نبع الحنان

إلى والدتي العزيزة

إلى إخواني وأخواتي

إلى...........أصدقائي

أهدي هذا العمل المتواضع

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Abstract

"The Effect of Capital Structure Changes on Firm Value under Different Risk Levels: Evidence from Jordanian Market"

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The objective of this study is to investigate the impact of capital structure changes on firm value in the Jordanian corporations under different levels of systematic-risk. It has sampled 70 non-financial companies listed and traded in Amman Stock Exchange over the period from 1998 to 2004. The firms included in the study were then classified into three groups: firms with high, medium, and low beta. Using an ordinary least square regression to analyze the data, the results indicated that change in firm's capital structure has a statistically significant negative effect on changes in firm's market value for the high-risk and low-risk firms only; the negative relationship reported in this study may suggests that extensive use of debt for high-risk and low-risk firms affects firm's market value negatively and that these firms are not able to realize the main benefit from using debt financing. The study recommends that the non-financial Jordanian companies, with respect to their systematic-risk, should take into consideration the main factors that are found significant by the study to affect their market values.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The most important objective of any management is a setting of clearly defined objectives for the firm. Above all, management must quantify these objectives, so that the company performance can be checked against pre-set standards.

The normative objective underlying a corporate financial management theory is to maximize stockholders' wealth. Management is also motivated to achieve other objectives, some of which are maximizing earning per share, maximizing sales and market share, being a leading marketer of strong consumer brands, and maintain a strong financial position.

Firms achieve the goal of stockholders' wealth maximization through mixing the permanent sources of funds used by them. The capital structure decision is a significant managerial decision, which influences the risk and return of the investments. The company will have to plan its capital structure at the time of its establishment. Whenever the company needs to change its capital structure, it involves a capital structure decision because it has to determine the way of capital structure changes.

The firm's capital structure is a mix of equity rights and debt in the financing of capital. It defines as the total debt ratio which is the

ratio of total debt to total assets. Therefore, the change in total debt ratio reflects the change in capital structure. The firm's market value reflects what investors believe the firm is worth; calculated by multiplying the number of shares outstanding by the current market price of a firm's shares. The firm's systematic-risk, also called market risk, defines as a risk common to a particular sector or country. Often refers to a risk resulting from a particular "system" that is in place, such as the regulator framework for monitoring of financial institutions.

When a firm changes its capital structure, it actually changes the relative position and the market values of its capital suppliers' securities holdings. Accordingly, to the extent the capital suppliers are interested in their securities' market value, the firm's market value changes. These changes may result in changes in the degree of systematic-risk the firm is exposed to. This shows the necessity to examine the impact of capital structure changes on firm value under different levels of systematic-risk.

This study investigates the relationship between capital structure changes and firm value under three different levels of systematic-risk; high, medium, and low for all non-financial Jordanian companies over the period from 1998 to 2004.

1.2 Problem Statement

Some of Jordanian corporations face an accounting obstacles procedure, such as dissimilarity in financial statement computations that is required by insurance and banking sectors.

1.3 Importance of the Study

The importance of this study comes from the following points:

1- The importance of this study stems from the fact that it will be the first research about examining the impact of capital structure changes on firm value under different risk levels in the Jordanian non-financial corporations.

2- This study presents one of the useful of such studies, examining the relationship between capital structure and firm value in the Jordanian market, to corporate managers when they need to plan for some changes in capital structure and its determinants, and at the same time, explore the effect of those changes on the firm's market value.

3- The results of other studies, examining the relationship between capital structure and firm value in the Jordanian market, have mixed up the effect of the risk factor. This

study is important since it differentiates between high-risk, medium-risk, and low-risk securities.

4- This study is important since it helps in analyzing the recent trends in capital structure changes and firm's value of Jordanian non-financial corporations.

1.4 Objective of the Study

This study aims to empirically investigate the impact of capital structure changes on firm value under different levels of systematic-risk for all non-financial Jordanian corporations over the period spanning from 1998 to 2004.

1.4 Hypotheses of the Study

The hypotheses of this study are stated as follows:

-For the high systematic-risk firms group,

H_0 : There is no relationship between capital structure changes and firm value.

H_A : There is a relationship between capital structure changes and firm value.

-For the medium systematic-risk firms group,

H_0 : There is no relationship between capital structure changes and firm value.

H_A : There is a relationship between capital structure changes and firm value.

-For the low systematic-risk firms group,

H_0 : There is no relationship between capital structure changes and firm value.

H_A : There is a relationship between capital structure changes and firm value.

1.5 Limitation of the Study

This study has encountered constraint and restriction such as it is constrained to the non-financial sectors (manufacturing and non-financial service sectors) due to dissimilarity in financial statement computations that is required by the insurance and banking sectors.

1.6 Structure of the Thesis

The thesis is organized as follow:

Chapter two provides theoretical background, chapter three reviews the major empirical studies conducted about the relationship between capital structure changes and firm value, chapter four presents the methodology which was implemented to test the research hypotheses, chapter five analyze the data, and chapter six mainly reported the results of the analysis and suggests some recommendations.

CHAPTER TWO

THEORETICAL BACKGROUND

2.1 Stockholder Wealth Maximization

Most literature writers agree that the primary objective of the firm should be stockholders wealth maximization. The market value of the firm's common stocks reflects stockholders wealth because the effects of all financial decisions are thereby included.

Maximizing stock price requires several actions, such as:

1. Efficient, low-cost plants that produces high quality goods and services at the lowest possible cost.
2. The financial management should maintain an optimal capital structure that maximizes stocks market prices of the firm.
3. The development of products that consumers want and need, so the profite motive leads to new technology, to new products, and to new jobs.

These actions also are beneficial to soceity at large because successful firms are absolutely necessary for a healthy and productive economy (Weston & Brigham, 1993).

But how the financial management achieve the goal of stockholders wealth maximization?

To answer the above question we should reflect that the maximization of stockholder wealth depends on the tradeoff between risk and profitability. The higher the risk of project, the higher the

expected return should be from the project. Thus, the financial manager must attempt to determine the optimal balance between risk and return that will maximize the wealth of the firm's stockholders. This optimal balance between risk and profitability is frequently called the risk-return tradoff and this could be available through the effective financial decisions (investment and financing decisions) which are made to maximize stockholders wealth. Investment decisions are concerned with the structure of firm investments whether it is short-term investments (current assets) or long-term investments (fixed assets). While the financing decisions are concerned with the firm's capital structure whether it is short-term or long-term financing decisions, and also to determine the mix of debt and equity it desires to finance its investments inorder to maximize its market value.

2.2 Financing Decision and Cost of Capital

Each source of financing has a cost which is called a component-cost of capital. From an investor's prospective, these component costs are required rates of returns. This required rate of return is the minimum rate of return required by the investor which should be at least equal the cost rate. Differences between investor-required rates of return and the cost of capital to the company can be

explained by transactions costs and tax effects. The weighted average cost of capital is the weighted average of the company's after-tax component capital costs.

The capital structure choice has long been an issue of great interest in the corporate finance literature. This interest is due to the fact that the mix of funds affects the cost and availability of capital and thus, firms' investment decisions. Companies normally prefer debt to finance their assets because interest payable is tax deductible in the computation of profits for tax purposes. Using more debt raises the risk of the firm's earning stream, but a higher proportion of debt generally leads to a higher expected rate of return. A great deal of controversy has developed over whether the capital structure of a firm as determined by its financing decision, affects its cost of capital. Traditionalists argue that the firm can lower its cost of capital and increase market value per share through using leverage. However, as the company levers up itself and becomes increasingly risky, financial lenders begin to charge higher interest rates on debt. Beyond this point the cost of capital begins to rise. According to the traditionalists that point denotes the optimal capital structure.

The optimal capital structure is the one that strikes a balance between risk and return to achieve the goal of minimizing the weighted average cost of capital and maximizing stock price (Glean,

2002). The optimal capital structure might change over time as conditions vary, but at any given time the firm's management has a specific capital structure in mind and individual financing decisions should be consistent with this target.

Therefore, any changes in the composition of the firm's investments or financial structure will change the weighted average cost of capital and consequently the firm market value.

2.3 Ways of Changing the Firm's Capital Structure

If the actual proportion of debt is below the target, new funds will be raised by issuing debt, whereas if the proportion of debt is above the target, stock probably will sold to bring the firm back in line with the target ratio.

Firms can change their debt ratios in four ways. They can recapitalize existing investments, using new debt to reduce equity or new equity to retire debt. They can divest existing assets, and use the cash to reduce equity or retire debt. They can invest in new projects, and finance these investments disproportionately with debt or equity. Finally, they can increase or decrease the proportion of their earnings that forms dividend to stockholders, in the form of dividends or stock buybacks.

2.3.1 Recapitalization

The simplest and often the quickest way to change a firm's financial mix is to change the way existing investments are financed. Thus, an underlevered firm can increase its debt ratio by borrowing money and buying back stock or replacing equity with debt of equal market value.

2.3.2 Divestiture and Use of Proceeds

Firms can also change their debt ratios by selling assets and using the cash they receive from the divestiture to reduce debt or equity. Thus, an underlevered firm can sell some of its assets and use the proceeds to repurchase stock or pay large dividends. While this action reduces the equity outstanding of the firm, it will increase the debt ratio of the firm only if the firm already has some debt outstanding. An overlevered firm may choose to sell assets and use the proceeds to retire some of the outstanding debt and reduce its debt ratio.

2.3.3 Financing New Investments

Firms can also change their debt ratios by financing new investments disproportionately with debt or equity. If they use a much higher proportion of debt in financing new investments than their current debt ratio, they will increase their debt ratio. Conversely, if

they use a much higher proportion of equity in financing new investments than their existing equity ratio, they will decrease their debt ratio.

2.3.4 Changing Dividend Payout

A firm can change its debt ratio by changing the proportion of its earnings those dividends to stockholders in each period. Increasing the proportion of earnings paid out in dividends (the dividend payout ratio) or buying back stock each period will increase the debt ratio for two reasons. First, the payment of the dividends or buying back stock will reduce the equity in the firm; holding debt constant, this will increase the debt ratio. Second, paying out more of the earnings to stockholders increases the need for external financing to fund new investments; if firms fill this need with new debt, the debt ratio will be increased even further. Decreasing the proportion of earnings returned to stockholders will have the opposite effects.

2.4 Capital Structure Theories

Capital structure theory was developed in what has been called the most influential set of financial papers ever puplished by Professors Franco Modigliani and Merton Miller (1958), they proved – under a very restrictive set of assumptions, including that there exist no income tax, no brokerage costs, and no bankruptcy costs – that

the inclusion of more debt in capital structure will not increase the value of the firm. In 1963, MM published a second article incorporated corporate income tax, they conclude that due to the tax deductibility of interest on corporate debt, a firm's value rises continuously as more debt is used, and hence its value will be maximized by financing almost with debt. Because several of the assumptions outlined by (MM) are unrealistic, (MM) position was only the beginning of capital structure research. Subsequent researchers extended the basic theory by relaxing the assumptions.

2.4.1 Trade-off Theory

This theory derives indirectly from the work of Miller and Modigliani (1958). The trade-off theory of capital structure argues that value-maximizing firms attain an optimal capital strucuture by balancing the corporate tax benefits of debt against the (income tax, bankruptcy, or agency) costs associated with debt. The obligation to pay principal and interest on debt puts pressure on a firm since failure to meet the obligation results in financial distress. The ultimate financial distress is bankruptcy, in which case, the ownership of the firm's assets is transferred to the bondholders. Costs of financial distress offset the advantages of debt at some point. The

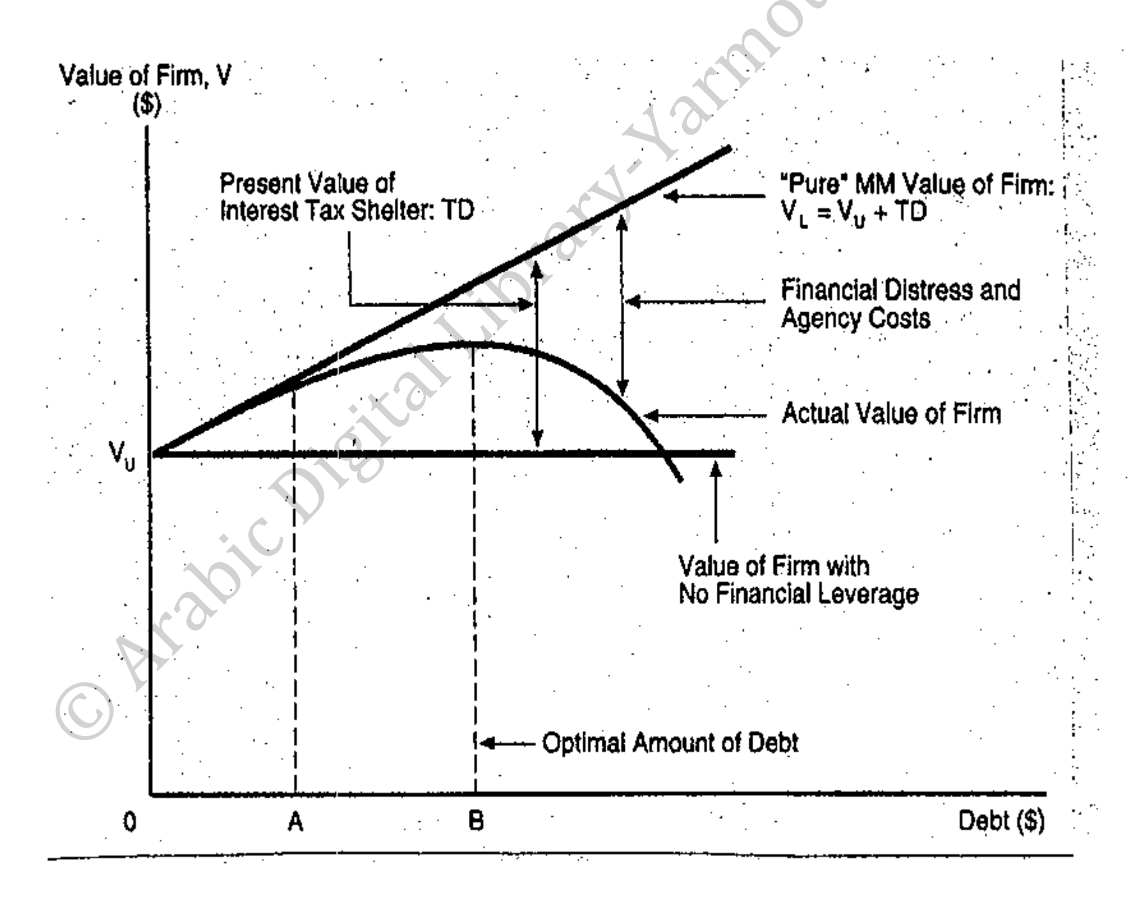
higher the firm financial leverage (fixed costs such as principal and interest payments), the greater the probability that a decline in earnings which will lead to financial distress. Further, the more prevailing financial distress is for a firm, the higher their financial distress costs. Overall, when a firm's probability of financial distress rises, the value of the firm declines and its cost of capital increases.

2.4.2 Agency Theory

Jensen and Meckling (1976) introduce agency costs as another explanation for optimal capital structure. Agency costs of debt only arise when there is a risk of default. If debt is totally free of default risk, debtholders are not concerned about the income, value or the risk of the firm. However if the possibility of default exists, shareholders can gain at the expense of debtholders. For instance, after issuing debt, a firm may decide to restructure its assets, selling off those with low business risk and acquiring assets that are more risky and thus have a higher possibility of default but also have higher expected returns. If things work out well, then the stockholders will get most of the benefit, but if not, then much of the loss will fall on the bondholders, who will have already agreed to be anticipated with a lower interest rate than the risk level of the firm presupposes. Nevertheless, the optimal capital structure of the firm will be formed

at this particular level where the benefits of the debt that can be received by the shareholders balance with the costs of debt imposed by the debtholders.

The following figure illustrates the relationship between rising debt levels and financial distress/agency costs:



2.1 Firm Value According to M&M Capital Structure Theory (1963)

The graph begins at a point with no debt, the value of the firm increases as debt is added. The incremental gains from additional debt begin decreasing due to the growing possibility of financial distress and agency costs. The optimal capital structure occurs when the present value of the tax saving from an additional dollar of debt equals the increase in the present value of expected bankruptcy (point B).

2.4.3 Signaling Theory

One of the MM's assumptions is that investors and managers have the same information about the firm's prospects, which is called symmetric information. However, managers often have better information than outside investors, this is called asymmetric information, and it has an important effect on capital structure.

In asymmetric information, firms with extremely good prospects prefer to finance with debt because they would not have had to share profit of the new investment with new investors. Whereas, firms with poor prospects like to finance with stocks which would mean bringing in new investors to share the losses. Therefore, the announcement of stock offering of a mature firm that has financing alternatives is taken

as a signal that the firm's prospects as seen by its management are not bright.

In normal times, maintaining a reserve borrowing capacity which can be used in the event that some especially good investment opportunity comes along. This means that firms in normal times should use less debt than is suggested by the trade-off theory.

As a result, these capital structure theories can be combined to reason the behavior of firms. First, firms will employ some debt financing due to the tax deductibility of interest. Next, there is a limit to the amount of debt usage a firm will have because of financial distress and agency costs. Also, firms may maintain a reserve so they can take advantage of good investment opportunities without needing to issue new stock (asymmetric information). The empirical works related to these theories revealed that firms change its capital structure to make certain changes in their market values.

2.5 Capital Structure Changes, Firm Value and Risk

The relationship between firm's market value and risk can be related to the agency theory. The firm's decisions to change its capital structure can result in an agency problem, which might increase the degree of the firm's risk. According to the agency theory,

stockholders capture investment returns above those required to service debt repayments and other liabilities and at the same time have limited liabilities when returns are insufficient. Therefore, stockholders prefer high-risk projects, in conflict with bondholders' preferences (Eldomiaty, 2004).

Green (1984) argues that convertible debt can circumvent this agency problem (or asset substitution problem) that arises when firms accept projects that are riskier than bondholders would prefer. His work indicates that a firm can make certain changes to its capital structure to deal with some agency problems. Masulis (1980) studied the effects of changing firm's capital structure on stock prices. He provides evidence that suggests that announcements of debt-for-equity exchange offers lead to abnormal stock increases, while equity-for-debt- exchange offers lead to abnormal stock price decreases. Such findings indicate that changes in capital structure affect the firm's systematic risk. This shows the necessity for examining the effects of risk levels when studying the relationship between changes in capital structure and market value in this study.

2.6 The Determinants of Capital Structure

The relevant literature on the determinants of capital structure provides number of factors that have been examined. (Al-Najar, 2003) founds that the firm's profitability, tax, liquidity, tangibility, dividends, size, and growth rate determine the firm's capital structure choice. (Miguel, 2001) founds that the investment, cash flows, and a financial distress cost affects the firm's debt policy. (Jayant, Noe, and Ramirez, 1991) concludes that the firm's risk, assets structure, capital expenditure, and advertising costs determine the firm's capital structure. (Titman and Wessels, 1988) find that there is a relationship between debt levels and the uniqness of business, non-debt tax shields, volatility, transactions costs, and firm's growth.

Therefore, there are several factors that affect the firms' capital structure decisions:

2.6.1 Company Size

Larger firms tend to be more diversified and less prone to bankruptcy (Rajan and Zingales, 1995). They are also expected to incur lower costs in issuing debt or equity. Thus, large firms are expected to have more ability to employ debt in their capital structures than small firms.

2.6.2 Firm's Profitability

Myers and Majluf (1984) argued that as a result of asymmetric information, companies prefer internal sources of finance. In other words, higher profitability companies tend to use lower debt levels and higher retained earnings as a source of finance.

2.6.3 Firm's Liquidity Position

Firm's liquidity position may have a mixed impact on the firm's capital structure decision. First, the higher the liquidity ratio the greater the ability of the firm to use debt due to its ability to meet its short-term obligation. On the other hand, firms with greater liquid assets may use these assets to finance their investments (Ozkan, 2001).

2.6.4 Firm's Growth

The high growth firms have greater future need for funds and also retain more earnings. According to trade-off theory, the retained earnings of high growth firms increase and they issue more debt to maintain the target debt ratio. The same relationship is supported by pecking order theory too. According to this, growth causes firms to shift financing from new equity to debt, as they need more funds to reduce the agency problem (Titman and Wessels, 1988).

These works reflects the importance of examining the effect of such determinants of capital structure when studying the relationship between capital structure changes and firm value.

CHAPTER THREE

LITERATURE REVIEW

Introduction

This chapter reviews the major studies conducted about the relationship between capital structure changes and firm value.

3.1 Empirical Studies

This section presents the empirical work of others that helps in more understanding of the subject of the study, the followings are relevant articles,

Eldomiaty (2004) examines the relationship between the changes in firm's capital structure and their effects on firm's market value under three different levels of systematic risk; high, medium, and low. The sample consists of 99 firms which they cover fourteen different non-financial industries in Egypt Stock Market (ESE) for the period from 1994 to 2001. The researcher was then divided the firms included in the samlpe into three groups: firms with high, medium, and low beta. The study used a multiple regression approach with the change in the firm's value measured as the number of shares outstanding multiplied by the current closing price at the date of financial statement preperation as a dependent variable. The independent variables are the change in firm's capital structre, the change in firm's profitability, the change in firm's liquidity, firm's growth, firm's size, inaddition to 14 variables cover

relatively the trade-off theory, pecking order theory and free cashflow theory. The main result of the study is that the relationship between capital structure changes and firm value is negative and statistically significant for high-risk firms, while for the low-risk and medium-risk firms it is negative but insignificant.

Oraluck and Ariff (2004) investigated the impact of the relative capital structure on the value of the firm. They used a sample consists of 639 observations taken from companies listed on the Australian Stock Exchange during the period from 1991 to 2003. The study used a multiple regression approach with the firm value proxid by three days Cumulative Average Return (CAR) as a dependent variable. The directional changes in the capital structure relative to the industry median debt ratio are independent dummy variables. The study concluded that there is a significant change in firm's value when the relative capital structure changes by 10-40 percent.

Abbad (2003) examined the impact of capital structure on the profitability and firm value. The sample consists of 25 firms taken from the industrial sector and listed on the Amman Stock Exchange over the

period from 1991 to 2000. Tow multiple regression models were used. The first model was used to investigate the relationship between capital structure and firm value with the value of the firm proxied by market-to-book ratio as a dependent variable. The independent variables are the firm's capital structure, size, corporate tax rate and earning before tax. The researcher founds that there is a positive and significant relationship between the value of the firm and its capital structure. The second model was used to examine the relationship between the firm's profitability and capital structure with the firm's profitability measured by the profit margin ratio as a dependent variable. The independent variables are the firm's capital structure and size.The result is that there is a negative and significant relationship between firm's profitability and capital structure.

Carpentier, L'her and Suret (2002) aimed to analyze the long term relationship between changes in capital structure and the value of the firm for a sample of 243 non-financial French firms over the 1987-1996 period. The study used a multivariate parametric model with the change in firm value proxied by the growth rate of market-to-book ratio as a dependent variable. The independent variable is the change in

leverage. The control variables are the growth rate of total assets and the mean profitability ratio. The researchers use the multiple regression model in two stages, in the first stage they found that there is no significant relationship between changes in leverage and changes in firm's value, in the second stage they included a dummy variable which reflects the reversion towards the target debt ratio as a dummy variable and found that the there is a lack of significant relationship between changes in capital structure with respect to the target ratio and change in the value of the firm.

Kaifeng (2002) empirically examined the influence of capital structure on the company value given different growth opportunities. The sample includes 127 firms incorporated in the Netherlands at the end of March 2001. The researcher used the price to equity ratio to differentiate the sample to high-growth firms and low-growth firms' subsamples. The study applied the multiple regression approach with the firm value measured by Tobin's Q as a dependent variable. The independent variable is total debt to assets ratio. The control variables are pre-tax profit margin ratio, tax rate, capital expenditures ratio and total assets. The regression model is preformed for the two subsamples.

The researcher found that in the low-growth firms subsample the relationship between the capital structure and the value of the firm is positive and significant while in the high-growth firms subsample the relationship is positive but insignificant.

Connell and Servas (1995) aimed to find the relationship between the selection of debt financing or equity financing through studying the value of the firm, financial leverage and stock ownership. They employed samples of 1173 firms in 1976, 1093 firms in 1982 and 830 firms in 1988 which were listed on the New York Stock Exchange (NYSE). They then divided the sample in to two subsamples; high-growth and low-growth firms. The study concluded that the correlation between the value of the firm and leverage is positive for low-growth firms and negative for high-growth firms.

Hatfield, Cheng and Davidson (1994) test the argument suggested by Masulis (1983) which stated that when firms which issue debt are moving towards the industry average of debt ratio from below, the market will react more positively than when the firm is moving away from the industry average. The sample consists of 183 firms which

announced a new debt issue for the period from 1981 to 1986. The study classifies firm's leverage ratio, as being above or below their industry average prior to the announcment of debt issued. They concluded that the market does not consider industry averages for leverage as discriminators for firm's financial leverage. They found that there is no significant relationship between firm's debt level and the industry's debt level and these results do not support masulis (1983) argument.

Kim, Chen and Nance (1992) examined the relationship between financial leverage changes and firm value. The sample consists of 68 primary issuances during the period from 1981 to 1982. The sample was then divided into two groups; Group 1 includes firms which are below their optimal financial leverage prior to the security issue, and Group 2 includes firms which are above their optimal financial leverage prior to the security issue. They used an event study methodology where the event is defined as the date the *WSJ* reports the plan to register for the issuance of a security. The methodology employed was to calculate Cumulative Average Return (CAR) for the event window and then attempt to explain the CARs in a linear regression model

where the independent variable is the change in financial leverage due to the new issue. Seven measures of financial leverage is tested. They found that there is a positive relationship between financial leverage changes and change in stock price for the corporations in Group 1, while for corporations in Group 2 they found a negative relationship between financial structure changes and changes in stock prices.

Pinegar and Lease (1986) examined the impact of preferred-for-common stock exchange offer on firm value for a sample consists of 37 firms listed on the NYSE and the ASE over the period from 1962 to 1980. The researchers used a two-stage regression approach. In the first stage, they used a regression model with the change in firm value proxied by the announcement period return as a dependent variable, the independent variables are the change in preferred stock liquidation values and the dummy variables which reflects the conversion privileges, voting rights, protective covenants and dividend arrearages. In the second stage they substituted the change in the dividends commitments for the change in preferred stock liquidation values. The study founds that a systematic changes in firm value occurs when companies announce preferred-for-common exchange offers.

Masulis (1983) measures the impact of capital structure changes on firm value using a sample of 133 firms Listed on the NYSE and ASE during the period from 1963 to 1978. The study use a multiple regression model with the primary announcement period stock return as a dependent variable and the major independent variables are changes in leverage multiplied by senior security claims outstanding and changes in debt tax-shields. The main result of the study is that both stock prices and firm values are positively related to changes in debt level and leverage.

Sarma and hanumata (1967) the objective of the study was to employ the model of Miller and Modigliani to a non-regulated industry and test the M&M hypothesis on the influence of debt on the value of the firm. The researchers use a sample of 30 engineering companies from the Indian ingineering industry and the years 1962, 1964 and 1965 were selected for the cross-section tests. The study used a multiple regression approach with the value of the firm as a dependent variable. The independent variables are the expected tax-adjusted earnings, the growth rate of tax-adjusted earnings, debt, size and fixed assets. The

researchers used the two-stage least-squares technique. In the first stage they found that there is a positive relationship between the capital structure changes and firm value. While in the second stage the researchers excluded the tax-shield from the value of the firm and concluded that there is no relationship between capital structure and the value of the firm and this conclusion supports M&M hypothesis.

CHAPTER FOUR

DATA &

METHODOLOGY

Introduction

This chapter discusses the methodology used to investigate the impact of capital structure changes on firm value under three different levels of systematic risk for all non-financial companies listed and traded on the Amman Stock Exchange (ASE) over the period from 1998 to 2004. The first section explains the population, sample and data collection. The second section provides a brief explanation about the variables under investigation and their measurements. The third section presents the model specification. The fourth section presents the hypothesis of the study and the test period.

4.1.1 Population of the Study

The population of the study includes all non-financial companies listed and traded on the ASE over the period from 1998 to 2004.

4.1.2 Sample of the Study

The sample of this study consists of the non-financial companies listed and traded on the ASE over the period from 1998 to 2004, and which satisfied these criteria:-

- The selected companies should have maintained their identity over the period from 1997 to 2004.

- The selected companies should have reported their annual accounts over the period from 1997 to 2004.
- Companies that were acquired by another company or merged with another company over the period of the study are excluded from the sample.

According to these criteria, table (4.1) presents the distribution of the sample companies. *Appendix (1)* lists the names of the companies' whole sample.

Table 4.1: Sample Structure

Service sector	24 Firms
Manufacturing sector	46 Firms
Total	70 Firms

The firms included in this study were then divided into three groups according to their risk: firms with high; medium; and low systematic risk respectively *(See appendix (2)).* For each firm, beta over the test period was considered. Firms' beta was arranged in a descending order. Starting from the first firm with the highest beta, the first group of firms was chosen whose sum of betas equal to the

sum of the whole sample betas divided by three. So were the second and the third groups chosen.

Firm's beta will be measured according to the single-factor model as follows,

$$B_i = \frac{Cov_{r_m, r_i}}{\sigma^2_{r_m}}$$

Where,

B_i : Firm's beta over the test period (Seven years).

Cov_{r_m, r_i} : The covariance between the market return (r_m) and the stock return for company i (r_i).

$\sigma^2_{r_m}$: The variance of market return.

In order to measure the stock returns, this study follows Roll (1981),

$$r_{i_t} = \frac{SP_{i_t} - SP_{i_{t-1}} + (Div_{i_t})}{SP_{i_{t-1}}}$$

Where,

r_{i_t} : The stock rate of return for company i in year t.

SP_{i_t} : The closing stock price for company i at the end of year t.

$SP_{i_{t-1}}$: The closing stock price for company i at the end of year t-1.

Div_{i_t} : Dividends for company i in year t.

As a result, table (4.2) presents the distribution of the groups' firms. *(See appendix 3,4, and 5 respectively)*

Table 4.2: Groups Structure

High systematic risk	7 Firms
Medium systematic risk	12 Firms
Low systematic risk	51 Firms
Total	70 Firms

4.1.3 Data Collection

Data were collected from the following sources:-

Primary Sources

The data related to firms' income statement and balance sheet items were collected from the firms' annual reports. The firms' market value, closing stock price and market return were obtained from the Jordanian shareholding companies guide and Cds published by ASE. The data covers 8 years from 1997 to 2004.

Secondary Sources

The information about the subject of the study was collected from books, articles, journals, and other references that related to the subject of the study and helped in developing hypothesis, modeling and analyzing data.

4.2 Measurement of Variables

Variables of the study are classified into dependent and independent variables. The following section provides a brief explanation of the variables used in the study and their measurements.

4.2.1 Dependent Variable:

The dependent variable is the change in firm's market value.

4.2.1.1 Change in Firm's Market Value (ΔMV)

The market value of the firm defined as the number of common shares outstanding multiplied by the current closing price at the date of financial statement preperation. This variable is to measure the firms' adjustment to a target value; therefore it is measured as a change in firm value. In order to measure the change in firm value, this study follows Eldomiaty (2004),

$$\Delta MV_{it} = MV_{it} - MV_{it-1}$$

Where,

ΔMV_{it}: The change in market value for company i in year t.

MV_{it} : The market value for company i in year t.

MV_{it-1} : The market value for company i in year t-1.

(See appendix 3, 4, and 5 respectively.)

4.2.2 Independent Variables:

The independent variables are the change in firms' capital structure, change in firm's profitability, change in firm's liquidity, firm's growth, and firm's size.

4.2.2.1 Change in Firm's Capital Structure (ΔTDR)

The capital structure is proxid by the total debt ratio which is the ratio of total debt to total assets (Rajan and Zingales, 1995). The signaling effect of debt on firms' market value is measured by taking into account that the amount of changes in market value in a certain period is affected by the amount of changes in debt in the same period (Eldomiaty, 2004). The study essentially follows Eldomiaty (2004) in measuring the change in firm's capital structure,

$$\Delta TDR_{i_t} = TDR_{i_t} - TDR_{i_{t-1}}$$

Where,

ΔTDR_{i_t}:The change in capital structure for company i in year t.

TDR_{i_t} : The capital structure for company i in year t.

$TDR_{i_{t-1}}$: The capital structure for company i in year t-1.

(See appendix 3, 4, and 5 respectively.)

Also, the relevant literature provides number of factors that have been examined and founds to affect the firm's debt policy. According to the literature review, some of these variables will be examined in time lag effects to address the dynamic effects of changes in the level of the determinants of firm's capital structure on the firm's market value. Other variables will be measured in a static form as they can not be anticipated, thus, planned for, in advance. These variables are changes in firm's' profitability, changes in firms' liquidity, firms' growth, and firms' size.

4.2.2.2 Change in Firm's Profitability (ΔROA)

The return on assets ratio (ROA) which is the ratio of net income to total assets is used as a proxy of firm profitability (Kaen, 1995). This study follows Eldomiaty (2004) in measuring the change in firm's profitability,

$$\Delta ROA_{i_t} = ROA_{i_t} - ROA_{i_{t-1}}$$

Where,

ΔROA_{i_t}: The change in profitability for company i in year t.

ROA_{i_t} : The profitability for company i in year t.

$ROA_{i_{t-1}}$: The profitability for company i in year t-1.

(See appendix 3, 4, and 5 respectively.)

4.2.2.3 Change in Firm's Liquidity (ΔCR)

The current ratio which is the ratio of current assets to current liabilities is used as a proxy of the firms' liquidity position (Ozkan, 2001). In order to measure the change in firm's liquidity, this study follows Eldomiaty (2004),

$$\Delta CR_{i_t} = CR_{i_t} - CR_{i_{t-1}}$$

Where,

ΔCR_{i_t} : The change in liquidity for company i in year t.

CR_{i_t} : The liquidity for company i in year t.

$CR_{i_{t-1}}$: The liquidity for company i in year t-1.

(See appendix 3, 4, and 5 respectively.)

4.2.2.4 Firm's Growth (GTA)

The growth of total assets measured as a percentage change in total assets (Carpentier, L'her and Suret, 2002) is used in this study.

$$GTA_{i_t} = \frac{TA_{i_t} - TA_{i_{t-1}}}{TA_{i_{t-1}}}$$

Where,

GTA_{i_t} : The growth for company i in year t.

TA_{i_t} : The total assets for company i in year t.

$TA_{i_{t-1}}$: The total assets for company i in year t-1.

(See appendix 3, 4, and 5 respectively.)

4.2.2.5 Firm's Size (SIZE)

Firm size is measured in this study with a natural logarithm of total assets. Chen (2002) and Eldomiaty (2004) are just a few examples of using a natural log of total assets as a proxy for the firm size.

$$SIZE_{i_t} = LN\ (TA_{i_t})$$

Where,

$SIZE_{i_t}$: The size for company i in year t.

TA_{i_t} : The total assets for company i in year t.

$LN(TA_{it})$: The natural logarithm of total assets for company i year t.

(See appendix 3, 4, and 5 respectively.)

4.3 The Model

To test the hypothesis that capital structure changes do not affect the value of the firm, the following multiple regression model is estimated:

$$\Delta MV_{it} = \lambda_0 + \lambda_1 \Delta TDR_{it} + \lambda_2 \Delta ROA_{it} + \lambda_3 \Delta CR_{it} + \lambda_4 GTA_{it} + \lambda_5 SIZE_{it} + \varepsilon_{it}$$

Where,

ΔMV_{it} : The change in market value for company i in year t.

ΔTDR_{it} : The change in capital structure for company i in year t.

ΔROA_{it} : The change in profitability for company i in year t.

ΔCR_{it} : The change in liquidity for company i in year t.

GTA_{it} : The growth for company i in year t.

$SIZE_{it}$: The size for company i in year t.

ε_{it} : Error term.

λ_i's : Parameters.

The model is performed for the three groups of firms: the group with high systematic risk firms, the group with medium systematic risk firms, and the group with low systematic risk firms.

4.4.1 Hypotheses of the Study

The hypotheses of this study are stated as follows:

-For the high systematic-risk firms group,

H_0 : There is no relationship between capital structure changes and firm value.

H_A : There is a relationship between capital structure changes and firm value.

-For the medium systematic-risk firms group,

H_0 : There is no relationship between capital structure changes and firm value.

H_A : There is a relationship between capital structure changes and firm value.

-For the low systematic-risk firms group,

H_0 : There is no relationship between capital structure changes and firm value.

H_A : There is a relationship between capital structure changes and firm value.

4.4.2 Test period

The test period covers seven years from 1998 to 2004.

CHAPTER FIVE

DATA ANALYSIS

Introduction

As it is mentioned earlier, this study attempts to investigate the relationship between capital structure changes and firm value under three different levels of systematic risk; high, medium, and low. The study includes all non-financial companies listed on the Amman Stock Exchange (ASE) over the period from 1998 to 2004.

This study used the change in firm value (ΔMV) as a dependent variable. The independent variables are the change in the firm's capital structure (ΔTDR), change in firm's profitability (ΔROA), change in firm's liquidity (ΔCR), firm's growth (GTA), and firm's size (SIZE). The Δ is measured as (t) – (t-1) for all variables.

This chapter is divided into two sections. The first section provides the descriptive statistics for the three groups of firms; high, medium, and low systematic risk respectively. The second section explains how the data were analyzed in order to test the hypothesis of the study for each group of firms independently.

5.1 Descriptive Statistics

This section provides the descriptive statistics for the variables used in this study. It includes mean, standard deviation, maximum, and minimun values for each variable.

5.1.1 High Systematic Risk Firms

Table (5-1) shows the descriptive statistics of variables used to examine the relaionship between capital structure changes and firm value for high systematic risk firms. The sample consists of 70 non-financial firms of which 7 firms are the high systematic risk firms. The sample has a 49 observations from 1998-2004.

Table (5-1)
High Systematic Risk Firms
Descriptive statistics

	Mean	Std. Deviation	Maximum	Minimum
ΔMV	1819256	6924939	42240000	-2640000
ΔTDR(%)	-1.42893	12.24575	30.38619	-42.5938
ΔROA(%)	2.58311	12.77852	44.67297	-22.4196
ΔCR (Times)	1.980099	11.67353	51.92403	-30.9471
GTA(%)	7.51725	30.98257	110.3049	-43.2519
SIZE(Ln)	15.8088	0.806621	17.38692	13.97146

5.1.2 Medium Systematic Risk Firms

Table (5-2) shows the descriptive statistics of variables used to examine the relaionship between capital structure changes and firm value for medium systematic risk firms. The sample consists of 70 non-financial firms of which 12 firms are the medium systematic risk firms. The sample has an 84 observations from 1998-2004.

Table (5-2)
Medium Systematic Risk Firms
Descriptive statistics

	Mean	Std. Deviation	Maximum	Minimum
ΔMV	13966620	83320125	5.3E+08	-2.8E+08
ΔTDR(%)	1.864378	9.770967	54.70743	-24.0289
ΔROA(%)	0.695322	7.049795	24.13621	-30.0711
ΔCR(Times)	0.041158	3.208037	22.14674	-13.2852
GTA(%)	17.01669	98.28434	888.8121	-39.1566
SIZE(Ln)	16.90548	1.371429	19.87135	14.9082

5.1.3 Low Systematic Risk Firms

Table (5-3) shows the descriptive statistics of variables used to examine the relaionship between capital structure changes and firm value for low systematic risk firms. The sample consists of 70 non-financial firms of which 51 firms are the low systematic risk firms. The sample has a 357 observations from 1998-2004.

Table (5-3)
Low Systematic Risk Firms
Descriptive statistics

	Mean	Std. Deviation	Maximum	Minimum
ΔMV	2801753	12812469	78750000	-9.7E+07
ΔTDR(%)	-1.01971	14.48725	103.0508	-135.45
ΔROA(%)	0.215359	9.67905	108.0881	-63.887
ΔCR(Times)	-0.04032	5.984874	51.67551	-46.0245
GTA(%)	6.176909	26.37992	248.1912	-65.1998
SIZE(Ln)	16.4534	1.236607	19.93684	13.82011

5.2 Testing the Hypothesis of the Study

The objective of the study is to examine if there is a relationship between capital structure changes and firm value under different levels of systematic risk.

The research used a Multiple Regression Model in which the change in firm's value is the dependent variable. The independent variables are the change in firm's capital structure, change in firm's profitability, change in firm's liquidity, firm's growth, and firm's size. The model is performed for the three groups; high, medium, and low systematic risk firms.

Since this study interested in examining the relationships between the variables, therefore, the researcher use the Correlation

analysis in order to investigate the relationship between the two variables (capital structure changes and firm value) and also use the Regression Analysis and F test to find the causality relationship between the dependent variable and the independent variables.

5.2.1 Correlation Analysis

This section is concerned with revealing the correlation between the variables of the study. The researcher used the Pearson correlation test which gives an idea about the direction and the strength of the relationship between the variables of the study and how a change in the independent variables affects the dependent variable.

5.2.1.1 High Systematic Risk Firms

Table (5-4) shows the Pearson correlation coefficents between the dependent and independent variables for the high systematic risk firms.

Table (5-4)
High Systematic Risk Firms
Pearson correlation coefficient

		ΔMV	ΔTDR	ΔROA	ΔCR	GTA	SIZE
ΔMV	Pearson Correlation	1.000	-0.021	0.140	0.281	0.620	0.377
	Sig. (2-tailed)	.	0.443	0.169	*0.025***	*0.000***	*0.004***
	N	49	49	49	49	49	49
ΔTDR	Pearson Correlation	-0.021	1.000	-0.066	-0.396	0.319	0.076
	Sig. (2-tailed)	0.443	.	0.326	*0.002***	*0.013***	0.302
	N	49	49	49	49	49	49
ΔROA	Pearson Correlation	0.140	-0.066	1.000	0.174	0.565	0.097
	Sig. (2-tailed)	0.169	0.326	.	0.116	*0.000***	0.254
	N	49	49	49	49	49	49
ΔCR	Pearson Correlation	0.281	-0.396	0.174	1.000	-0.084	0.078
	Sig. (2-tailed)	*0.025***	*0.002***	0.116	.	0.282	0.296
	N	49	49	49	49	49	49
GTA	Pearson Correlation	0.620	0.319	0.565	-0.084	1.000	0.398
	Sig. (2-tailed)	*0.000***	*0.013***	*0.000***	0.282	.	*0.002***
	N	49	49	49	49	49	49
SIZE	Pearson Correlation	0.377	0.076	0.097	0.078	0.398	1.000
	Sig. (2-tailed)	*0.004***	0.302	0.254	0.296	*0.002***	.
	N	49	49	49	49	49	49

** Significant Level at 5%

From table (5-4), the correlation between ΔCR and ΔMV is positive and statistically significant at Pearson significance level (P-value) equal to 0.05. Also, there is a positive and statistically significant relationship between GTA and ΔMV at the same level of significance. The other positive correlation of ΔMV is with SIZE at

the same level. While there is a positive correlation between ΔROA and ΔMV but it is statistically insignificant at P-value equal to 0.05. Finally, the correlation between ΔTDR and ΔMV is negative but statstically insignificant, therefore, the researcher can not depend on it to explain the variation in firm value for the high systematic risk firms and this is consistent with the null hypothesis which states that there is no statistically significant relationship between the tow variables.

5.2.1.2 Medium Systematic Risk Firms

Table (5-5) shows the Pearson correlation coefficents between the dependent and independent variables for the medium systematic risk firms.

Table (5-5)
Medium Systematic Risk Firms
Pearson correlation coefficients

		ΔMV	ΔTDR	ΔROA	ΔCR	GTA	SIZE
ΔMV	Pearson Correlation	1.000	-0.030	0.307	0.015	0.002	0.263
	Sig. (2-tailed)	.	0.393	0.002**	0.447	0.489	0.008**
	N	84	84	84	84	84	84
ΔTDR	Pearson Correlation	-0.030	1.000	0.088	-0.234	0.701	0.010
	Sig. (2-tailed)	0.393	.	0.214	0.016**	0.000**	0.464
	N	84	84	84	84	84	84
ΔROA	Pearson Correlation	0.307	0.088	1.000	-0.461	0.016	0.006
	Sig. (2-tailed)	0.002**	0.214	.	0.000**	0.444	0.479
	N	84	84	84	84	84	84
ΔCR	Pearson Correlation	0.015	-0.234	-0.461	1.000	-0.051	0.031
	Sig. (2-tailed)	0.447	0.016**	0.000**	.	0.324	0.390
	N	84	84	84	84	84	84
GTA	Pearson Correlation	0.002	0.701	0.016	-0.051	1.000	0.156
	Sig. (2-tailed)	0.489	0.000**	0.444	0.324	.	0.079
	N	84	84	84	84	84	84
SIZE	Pearson Correlation	0.263	0.010	0.006	0.031	0.156	1.000
	Sig. (2-tailed)	0.008**	0.464	0.479	0.390	0.079	.
	N	84	84	84	84	84	84

**Significant Level at 5%

From table (5-5), there is 30.7% positive relationship between ΔROA and ΔMV which is statistically significant at Pearson significance level (P-value) equal to 0.05. The other statistically positive correlation of ΔMV is with SIZE at the same level. While the ΔMV and GTA are positively correlated but it is statistically insignificant so that the correlation between ΔMV and ΔCR at the same level of significance. Also, there is a statistically insignificant relationship between ΔTDR and ΔMV but it is negative. The result of the correlation analysis indicated a lack of significant relationship between ΔTDR and ΔMV for the medium systematic risk firms.

5.2.1.3 Low Systematic Risk Firms

Table (5-6) shows the Pearson correlation coefficents between the dependent and independent variables for the low systematic risk firms.

From table (5-6), SIZE is the only variable that has a significant relationship with ΔMV. There is 28.7% positive relationship between SIZE and ΔMV which is statistically significant at Pearson significance level (P-value) equal to 0.05. The correlation between ΔROA and ΔMV is positive but statistically insignificant so that the correlation between GTA and ΔMV at the same level of significance. While, the correlation between ΔCR and ΔMV and the correlation

between ΔTDR and ΔMV is negative and both are statistically insignificant at P-value equal to 0.05.

Table (5-6)
Low Systematic Risk Firms
Pearson correlation coefficients

		ΔMV	ΔTDR	ΔROA	ΔCR	GTA	SIZE
ΔMV	Pearson Correlation	1.000	-0.057	0.044	-0.002	0.067	0.287
	Sig. (2-tailed)	.	0.143	0.205	0.489	0.104	*0.000***
	N	357	357	357	357	357	357
ΔTDR	Pearson Correlation	-0.057	1.000	-0.427	-0.119	0.411	0.069
	Sig. (2-tailed)	0.143	.	*0.000***	*0.012***	*0.000***	0.098
	N	357	357	357	357	357	357
ΔROA	Pearson Correlation	0.044	-0.427	1.000	0.007	0.013	-0.024
	Sig. (2-tailed)	0.205	*0.000***	.	0.451	0.401	0.326
	N	357	357	357	357	357	357
ΔCR	Pearson Correlation	-0.002	-0.119	0.007	1.000	0.195	-0.019
	Sig. (2-tailed)	0.489	*0.012***	0.451	.	*0.000***	0.362
	N	357	357	357	357	357	357
GTA	Pearson Correlation	0.067	0.411	0.013	0.195	1.000	-0.007
	Sig. (2-tailed)	0.104	*0.000***	0.401	*0.000***	.	0.445
	N	357	357	357	357	357	357
SIZE	Pearson Correlation	0.287	0.069	-0.024	-0.019	-0.007	1.000
	Sig. (2-tailed)	*0.000***	0.098	0.326	0.362	0.445	.
	N	357	357	357	357	357	357

**Significant Level at 5%

As a result, the correlation analysis indicates that there is a negative and statistically insignificant relationship between ΔTDR and ΔMV for the three groups of firms; high, medium, and low systematic risk firms.

5.2.1.4 Testing the Issue of Multicollinearity

Because of the correlation between the independent variables, this study examined the possibility of multicollinearity within the variables. Table (5-7) represents the Variance Inflation Factor (VIF) under the three groups of firms.

Table (5-7)
Variance Inflation Factor

High systematic risk firms		Medium systematic risk firms		Low systemmatic risk firms	
Independent variable	VIF	Independent variable	VIF	Independent variable	VIF
ΔTDR	1.398	ΔTDR	2.174	ΔTDR	1.666
ΔROA	1.762	ΔROA	1.271	ΔROA	1.310
ΔCA	1.250	ΔCA	1.366	ΔCA	1.109
GTA	2.237	GTA	2.111	GTA	1.387
SIZE	1.267	SIZE	1.046	SIZE	1.006

The VIF in the table does not exceed 5, and this suggests that there is no multicolinearity within the variables.

5.2.2 Regression Analysis

This section will complete the analysis of data through using the ordinally least square regression approach.

For the high-risk firms' group, to test the hypothesis that capital structure changes do not affect the value of the firm, the following multiple regression model is estimated:

$$\Delta MV_{it} = -1993950.946 + -132299.691\Delta TDR_{it} + -275197.542\Delta ROA_{it} + 213746.896\Delta CR_{it} + 224746.231 GTA_{it} + 140574.434 SIZE_{it} + \varepsilon_{it}$$

For the medium-risk firms' group, to test the hypothesis that capital structure changes do not affect the value of the firm, the following multiple regression model is estimated:

$$\Delta MV_{it} = -256979086.358 + 47181.202\Delta TDR_{it} + 4622682.876\Delta ROA_{it} + 4839872.163\Delta CR_{it} + -35023.288 GTA_{it} + 15855226.710 SIZE_{it} + \varepsilon_{it}$$

For the low-risk firms' group, to test the hypothesis that capital structure changes do not affect the value of the firm, the following multiple regression model is estimated:

$$\Delta MV_{it} = -48259754.713 + -125318.224\Delta TDR_{it} + -14832.741\Delta ROA_{it} + -83537.960\Delta CR_{it} + 65499.762GTA_{it} + 3071033.921SIZE_{it} + \varepsilon_{it}$$

For the reason of testing the hypothesis the researcher will use the variance analysis (F-Test), the null hypothesis (H_0) will be rejected and accepted the alternative hypothesis (H_A) if the significant level (P-value) is equal to or less than the significant level at (α = 0.05).

5.2.2.1 High Systematic Risk Firms

Table (5-8) shows the statistical analysis between the dependent and the independent variables for the high systematic risk firms.

Table (5-8)
High Systematic Risk Firms
ANOVA

Model		Sum of Squares	Df	Mean Square	F	R Square	Sig.
1	Regression	1.53E+15	5	3.06E+14	17.083	0.665	.000
	Residual	7.71E+14	43	1.79E+13			
	Total	2.3E+15	48				

From table (5-8), the significance of the model (P-value) is (0.000) and since it is less than the significant level (0.05), the null

hypothesis (H_0) is rejected, i.e, at least one of the independent variables can explain the dependent variable (ΔMV).

The model (R^2) = (0.665) which means that the independent variables explain 66.5% from the dependent variable and this is a good explanatory power.

While from table (5-9) which represent the coefficients, t-test, and the significant level (P-value) for the independent variables, it is obvious that the ΔTDR has a strong negative relationship with ΔMV and it is statistically significant at P-value equal to 0.05, and this suggest that the extensive use of debt affects firm's market value negatively which indicates that the firm is not able to realize the full benefit of debt financing (tax savings). Therefore, the null hypothesis (H_0) is rejected, i.e, there is a statistically significant relationship between capital structure changes and firm value. Also, there is a negative relationship between ΔROA and ΔMV and it is statistically significant at the same level of significance. The relationship between ΔCR and ΔMV is positive and statistically significant at P-value equal to 0.05 indicates that the high systematic risk firms are concerned in adjusting their liquidity position to positively affect firm's market value. Also, there is a positive and statistically significant relationship between GTA and ΔMV at the same level of significance indicates that the high systematic risk firms are concerned with the growth of

the firm's total assets to mitigate the effects of high systematic risk. Finally, the relationship between SIZE and ΔMV is positive but it is statistically insignificant and it can be interpreted that firm's investors are not concerned wit firm's assets.

Table (5-9)

High Systematic Risk Firms

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1993950.946	13414970.122		-0.149	0.883
	ΔTDR	-132299.691	58997.393	-0.234	-2.242	0.030
	ΔROA	-275197.542	63471.610	-0.508	-4.336	0.000
	ΔCA	213746.896	58532.175	0.360	3.652	0.001
	GTA	224746.231	29502.464	1.006	7.618	0.000
	SIZE	140574.434	852853.279	0.016	0.165	0.870

5.2.2.2 Medium Systematic Risk Firms

Table (5-10) shows the statistical analysis between the dependent and the independent variables for the medium systemmatic risk firms.

Table (5-10)
Medium Systematic Risk Firms
ANOVA

Model		Sum of Squares	df	Mean Square	F	R Square	Sig.
1	Regression	1.1E+17	5	2.2E+16	3.684	0.191	0.005
	Residual	4.66E+17	78	5.98E+15			
	Total	5.76E+17	83				

From table (5-10), the significance of the model (P-value) is (0.005) and since it is less than the significant level (0.05), the null hypothesis (H_0) is rejected, i.e, at least one of the independent variables can explain the dependent variable (ΔMV).

The model (R^2) = (0.191) which means that the independent variables explain 19.1% from the dependent variable and this is a weak explanatory power.

While from table (5-11) which represent the coefficients, t-test, and the significant level (P-value) for the independent variables, it is obvious that the ΔTDR has a positive relationship with ΔMV and it is statistically insignificant at P-value equal to 0.05. Therefore, the null hypothesis (H_0) is accepted, i.e, there is a statistically insignificant relationship between capital structure changes and firm value. The relationship between ΔROA and ΔMV is positive and statistically significant at P-value equal to 0.05 which indicates that the ΔROA affects firm market value positively. Also, there is a positive

relationship between ΔCR and ΔMV but it is statistically insignificant indicates that the medium risk firms are concerned to adjust their liquidity position to affect firm market value positively. The relationship between GTA and ΔMV is negative and statistically insignificant at the same level of significance. While the relationship between SIZE and ΔMV is positive and statistically significant which indicates that the firm's total assets are used effectively to affect firm's market value positively.

Table (5-11)
Medium Systematic Risk Firms
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-256979086.358	107186514.673		-2.397	0.019
	ΔTDR	47181.202	1280454.614	0.006	0.037	0.971
	ΔROA	4622682.876	1357214.374	0.391	3.406	0.001
	ΔCA	4839872.163	3090910.463	0.186	1.566	0.121
	GTA	-35023.288	125436.430	-0.041	-0.279	0.781
	SIZE	15855226.710	6327722.051	0.261	2.506	0.014

5.2.2.3 Low Systematic Risk Firms

Table (5-12) shows the statistical analysis between the dependent and the independent variables for the low systemmatic risk firms.

Table (5-12)
Low Systematic Risk Firms
ANOVA

Model		Sum of Squares	Df	Mean Square	F	R Square	Sig.
1	Regression	5.94E+15	5	1.19E+15	7.936	0.102	0.000
	Residual	5.25E+16	351	1.5E+14			
	Total	5.84E+16	356				

From table (5-12), the significance of the model (P-value) is (0.000) and since it is less than the significant level (0.05), the null hypothesis (H_0) is rejected, i.e, at least one of the independent variables can explain the dependent variable (ΔMV).

The model (R^2) = (0.102) which means that the independent variables explain 10.2 % from the dependent variable and this is a weak explanatory power.

While from table (5-13) which represent the coefficients, t-test, and the significant level (P-value) for the independent variables, it is obvious that the ΔTDR has a strong negative relationship with ΔMV and it is statistically significant at P-value equal to 0.05, and this suggest that the extensive use of debt affects firm's market value negatively which indicates that the firm is not able to realize the full benefit of debt financing (tax savings). Therefore, the null hypothesis (H_0) is rejected, i.e, there is a statistically significant relationship

between capital structure changes and firm value. Also, there is a negative relationship between ΔROA and ΔMV and it is statistically insignificant. While the relationship between ΔCR and ΔMV is negative and statistically insignificant indicates that the low systematic risk firms are not concerned in adjusting their liquidity position to affect firm's market value. Finally, the GTA and SIZE have a strong positive relationship with ΔMV and both are statistically significant at P-value equal to 0.05 giving the implication of a strong relationship between firm's total assets and its market value.

Table (5-13)
Low Systematic Risk Firms
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-48259754.713	8690671.152		-5.553	0.000
	ΔTDR	-125318.224	57756.543	-0.142	-2.170	0.031
	ΔROA	-14832.741	76641.274	-0.011	-0.194	0.847
	ΔCA	-83537.960	114067.573	-0.039	-0.732	0.464
	GTA	65499.762	28940.934	0.135	2.263	0.024
	SIZE	3071033.921	525889.318	0.296	5.840	0.000

CHAPTER SIX

RESULTS &

RECOMMENDATIONS

6.1 Results

The results of the study are summarized as follows:

1-For the high systematic-risk firms,

-There is a statistically significant negative relationship between change in firm's market value (ΔMV) and changes in capital structure (ΔTDR).

-There is a statistically significant negative relationship between change in firm's market value (ΔMV) and changes in profitability (ΔROA).

-There is a statistically significant positive relationship between change in firm's market value (ΔMV) and changes in liquidity (ΔCR).

-There is a statistically significant positive relationship between change in firm's market value (ΔMV) and firm's growth (GTA).

2- For the medium systematic-risk firms,

-There is a statistically significant positive relationship between change in firm's market value (ΔMV) and changes in profitability (ΔROA).

-There is a statistically significant positive relationship between change in firm's market value (ΔMV) and firm's size (SIZE).

3- For the low systematic-risk firms,

-There is a statistically significant negative relationship between changes in firm's market value (ΔMV) and changes in capital structure (ΔTDR).

-There is a statistically significant positive relationship between changes in firm's market value (ΔMV) and firm's growth (GTA).

-There is a statistically significant positive relationship between changes in firm's market value (ΔMV) and firm's size (SIZE).

4- The high-risk and low-risk non-financial Jordanian companies use an excess amount of debt and thereby could not able to realize the main benefits from using debt financing.

6.2 Recommendations

After mentioning the results gained from the study, the recommendations can be summarized as follows:

1-The study recommends that the non-financial Jordanian companies classified as high-risk firms should take into consideration the factors that determining their market values such as the change in capital structure, changes in profitability, change in liquidity, and firm's growth.

2- The study recommends that the non-financial Jordanian companies classified as medium-risk firms should take into consideration the factors that determining their market values such as changes in profitability and firm's size.

3-The study recommends that the non-financial Jordanian companies classified as low-risk firms should take into consideration the factors that determining their market values such as the change in capital structure, firm's growth, and firm's size.

4-This study also recommends that an improvement might be attained through including other variables and/or indicators such as tax position, sales stability, lenders attitudes, and assets tangibility which will help in more understanding of the relationship between the changes in firm's capital structure and changes in firm's market value.

REFERENCES

REFERENCES

English Articles

- Carpentier C., L'her J., and Suret J., "*Capital Structure Changes and Firm Value.*" Laval University, School of accounting, 2002. **Working Paper**.

- Connell John J.MC, Servaes Henri, "*Equity Ownership and The Two Faces of Debt.*" **Journal of Financial Economics**, VOL.39, P131-157, 1995.

- Eldomiaty L.Tarek," *Dynamics of Financial Signal Theory and Systematic Risk Classes in Transitional Economics: Egyptian Economy in Perspective*", **Journal of Financial Management and Analysis**, VOL.17. NO.2, P. 41-59, 2004.

- Green Richard. "*Investment Incentives, Debt and Warrants.*" **Journal of Financial Economics**, VOL.13: P.115-135. 1984.

- Hatfield Gay B., Cheng Louis T.W., and Davidson Wallace N.. "*The Determination of Optimal Capital Structure: The Effect of Firm and Industry Debt Ratio on Market Value*", **Journal of Financial and Strategic Decisions,** VOL.7, NO.3, 1994.

- Jayant R. , Noe H., and Ramirez," *The Effect of Business Risk on Corporate Capital Structure ; Theory and Evidence.*" **The Journal of Finance**. VOL. 49. P. 1693-1715. 1991.

- Jensen, Michael C. and William H. Meckling."*Theory of The Firm: Managerial Behavior, Agency Costs and Ownership Structure.*" **Journal of Financial Economics**, VOl.3: P.305-360. 1976.

- Kaifeng, Chen, *"The Influence of Capital Structure on Company Value with Different Growth Opportunities"* **Paper for EFMA**, annual meeting, 2002.

- Kim I., Chen KH, and Nance J, " *Information Content of Financial Leverage: An Empirical study.*" Journal of Business Finance and Accounting, 1992.

- Masulis, R.W., " *The Effects of Capital structure Changes on Security Prices: A Study of Exchange offers.*" Journal of Financial Economics. VOL.8. 1980.

- Masulis, R.W., "The *Impact of Capital Structure Changes on Firm Value: Some Estimates.*" **The Journal of Finance** ,VOL.XXXVIII, NO.1, P. 107-26, 1983.

- Miguel J., " *Determination of Capital Structure, New Evidence From Spanish Panel of Data*", **Journal of Corporate Finance**, P.77-99, 2001.

- Myers,S. C. and N. S Majluf, " *Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have.*" **Journal of Financial Economics**. VOL.13,P.187-221,1984.

- Oraluck Arsiraphongphisit, Mohamed Ariff, "*Optimal Capital Structure and Firm Value :Australian Evidence: 1991 – 2003*" **EFM Classification: Corporate Finance *140*,** 2004.

- Ozkan Aydin " *Determinants of Capital Structure and Adjustment to Long Run Target: Evidence from UK Panel Data*" **Journal of Business and Accounting**. VOL.28, P.175-198, 2001.

- Rajan G. Rghuram, Zingales Luigi " *What Do We Know About Capital Structure? Some Evidence of International Data*", **Journal of Finance**, P.1421-1460, 1995 .

- Roll, R., "A *Possible Explanation For the Small Firm Effect*", **Journal of Finance**, VOL.36, P. 879,1981.

- Sarma, Hanumanta, " *Leverage and The Value of The Firm*" **The Journal of Finance**. P 673-677. 1967.

- Titman Sheridan, Wessels Roberto, "The *Determinants of Capital Structure Choice.*" **Journal of finance**, VOL. XLIII, NO. 1. P. 1-19, March,1988.

Books:

- Glean Arnold, "*Corporate Financial Management*", Second edition, Prentice Hall, 2002.
- Weston J. Fred and Brigham F. Eugene, "*Managerial Finance*", Seventh Edition, Hinsdale Illinois, The Dryden Press, 1993.

Electronic Web Sites:

www.ASE.com.jo

www.yahoo.com

www.google.com

المراجع العربية

- النجار باسل،"*محددات هيكل رأس المال: دليل جديد من لائحة معلومات اردنية*"رسالة ماجستير غير منشورة، كلية الإقتصاد و العلوم الإدارية، جامعة اليرموك،٢٠٠٣.

- عباد منير، "*أثر هيكل رأس المال على ربحية و قيمة الشركات: دراسة تطبيقية على الشركات الصناعية المدرجة في بورصة عمان*." رسالة ماجستير غير منشورة، كلية الإقتصاد و العلوم الإدارية، جامعة اليرموك،٢٠٠٣.

APPENDICES

Appendix (1)
List Of Sample Companies

Company Name
JORDAN INDUSTRIAL RESOURCES
JORDANIAN EXPATRIATES INVESTMENT HOLDING
NATIONAL PORTFOLIO SECURITIES
UNION INVESTMENT CORPORATION
READY MIX CONCRETE AND CONSTRUCTION SUPPLIES
WOOLEN INDUSTRIES
UNION CHEMICAL & VEGETABLE OIL INDUSTRIES
ARAB FINANCIAL INVESTMENT
MIDDL EAST PHARM. AND CHEMICAL IND. & MEDICAL APPLIANCES
JORDAN NEW CABLE
JORDAN TRADE FACILITIES
JORDAN SULPHO CHEMICALS
NATIONAL CABLE & WIRE MANUFACTURING
JORDAN CEMENT FACTORIES
THE JORDAN PIPES MANUFACTURING
ARAB POTASH
THE UNIFIED FOR ORGANIZING LAND TRANSPORT
MIDDLE EAST COMPLEX FOR ENG., ELECTRONICS AND HEAVY INDUSTRIES
JORDAN STEEL
JORDAN PHOSPHATE MINES
THE JORDAN WORSTED MILLS
UNION LAND DEVELOPMENT COPRPORATION
UNITED FINANCIAL INVESTMENT
ARAB INTERNATIONAL HOTELS
JORDAN PAPER & CARDBOARD FACTORIES
ARAB ELECTRICAL INDUSTRIES
GENERAL INVESTMENT
JORDAN POULTRY PROCESSING & MARKETING
JORDAN ELECTRIC POWER
THE PUBLIC MINING
NATIONAL ALUMINIUM INDUSTRIAL
CENTURY INVESTMENT GROUP
IRBID DISTRICT ELECTRICITY
INTERNATIONAL TOBACCO & CIGARETTES
NATIONAL STEEL INDUSTRY
VEHICLES OWNERS FEDERATION
NATIONAL CHLORINE INDUSTRIES
REAL ESTATE INVESTMENT/ AKARCO
UNIVERSAL CHEMICAL INDUSTRIES
ZARA INVESTMENTS
JORDAN PRESS & PUBLISHING /(AD-DUSTOUR)
DAR AL- DAWA DEVELOPMENT & INVESTMENT
JORDAN PRESS FOUNDATION / AL-RA'I
JORDAN TANNING
JORDAN EXPRESS TOURIST TRANSPORT
JORDAN CHEMICAL INDUSTRIES

JORDAN CERAMIC INDUSTRIES
ARAB ALUMINIUM INDUSTRY/ARAL
JORDAN NATIONAL SHIPPING LINES
ARABIAN STEEL PIPES MANUFACTURING
THE ARAB INTERNATIONAL FOOD FACTORIES
NATIONAL POULTRY
INTERNATIONAL CERAMIC INDUSTRIES
AL-SHARQ INVESTMENTS PROJECTS
JORDAN WOOD INDUSTRIES (JWICO)
THE INDUSTRIAL COMMERCIAL & AGRICULTURAL
INTERMEDIATE PETRO CHEMICALS IND.
JORDAN DAIRY
THE ARAB INTERNATIONAL FOR EDUCATION & INV.
JORDAN HOTELS & TOURISM
THE ARAB CHEMICAL DETERGENTS INDUSTRY
ARAB CENTER FOR PHARM. & CHEMICALS
ARAB ENGINEERING INDUSTRIES
JORDAN HIMEH MINERAL
AL-ZARQA EDUCATIONAL & INVESTMENT
JORDAN PETROLEUM REFINERY
THE UNION TOBACO & CIGARETTE INDUSTRIES
UNIVERSAL MODERN INDUSTRIES
JORDAN INDUSTRIES & MATCH /(JIMCO)
PEARL SANITARY PAPER CONVERTING

Price and Return

APPENDIX (2)

#	Company Name
1	JORDAN INDUSTRIAL RESOURCES
2	JORDANIAN EXPATRIATES INVESTMENT HOLDING
3	NATIONAL PORTFOLIO SECURITIES
4	UNION INVESTMENT CORPORATION
5	READY MIX CONCRETE AND CONSTRUCTION SUPPLIES
6	WOOLEN INDUSTRIES
7	UNION CHEMICAL & VEGETABLE OIL INDUSTRIES

#	Company Name
1	ARAB FINANCIAL INVESTMENT
2	MIDDL EAST PHARM. AND CHEMICAL IND. & MEDICAL APPLIANCES
3	JORDAN NEW CABLE
4	JORDAN TRADE FACILITIES
5	JORDAN SULPHO CHEMICALS
6	NATIONAL CABLE & WIRE MANUFACTURING
7	JORDAN CEMENT FACTORIES
8	THE JORDAN PIPES MANUFACTURING
9	ARAB POTASH
10	THE UNIFIED FOR ORGANIZING LAND TRANSPORT
11	MIDDLE EAST COMPLEX FOR ENG., ELECTRONICS AND HEAVY INDUSTRIES
12	JORDAN STEEL

#	Company Name
1	JORDAN PHOSPHATE MINES
2	THE JORDAN WORSTED MILLS
3	UNION LAND DEVELOPMENT COPRPORATION
4	UNITED FINANCIAL INVESTMENT
5	ARAB INTERNATIONAL HOTELS
6	JORDAN PAPER & CARDBOARD FACTORIES
7	ARAB ELECTRICAL INDUSTRIES
8	GENERAL INVESTMENT
9	JORDAN POULTRY PROCESSING & MARKETING
10	JORDAN ELECTRIC POWER
11	THE PUBLIC MINING
12	NATIONAL ALUMINIUM INDUSTRIAL
13	CENTURY INVESTMENT GROUP
14	IRBID DISTRICT ELECTRICITY
15	INTERNATIONAL TOBACCO & CIGARETTES
16	NATIONAL STEEL INDUSTRY
17	VEHICLES OWNERS FEDERATION
18	NATIONAL CHLORINE INDUSTRIES
19	REAL ESTATE INVESTMENT/ AKARCO
20	UNIVERSAL CHEMICAL INDUSTRIES
21	ZARA INVESTMENTS
22	JORDAN PRESS & PUBLISHING /(AD-DUSTOUR)
23	DAR AL- DAWA DEVELOPMENT & INVESTMENT
24	JORDAN PRESS FOUNDATION / AL-RA'I

Price and Return

No.	Company
25	JORDAN TANNING
26	JORDAN EXPRESS TOURIST TRANSPORT
27	JORDAN CHEMICAL INDUSTRIES
28	JORDAN CERAMIC INDUSTRIES
29	ARAB ALUMINIUM INDUSTRY/ARAL
30	JORDAN NATIONAL SHIPPING LINES
31	ARABIAN STEEL PIPES MANUFACTURING
32	THE ARAB INTERNATIONAL FOOD FACTORIES
33	NATIONAL POULTRY
34	INTERNATIONAL CERAMIC INDUSTRIES
35	AL-SHARQ INVESTMENTS PROJECTS
36	JORDAN WOOD INDUSTRIES (JWICO)
37	THE INDUSTRIAL COMMERCIAL & AGRICULTURAL
38	INTERMEDIATE PETRO CHEMICALS IND.
39	JORDAN DAIRY
40	THE ARAB INTERNATIONAL FOR EDUCATION & INV.
41	JORDAN HOTELS & TOURISM
42	THE ARAB CHEMICAL DETERGENTS INDUSTRY
43	ARAB CENTER FOR PHARM. & CHEMICALS
44	ARAB ENGINEERING INDUSTRIES
45	JORDAN HIMEH MINERAL
46	AL-ZARQA EDUCATIONAL & INVESTMENT
47	JORDAN PETROLEUM REFINERY
48	THE UNION TOBACO & CIGARETTE INDUSTRIES
49	UNIVERSAL MODERN INDUSTRIES
50	JORDAN INDUSTRIES & MATCH /(JIMCO)
51	PEARL SANITARY PAPER CONVERTING

Markert Index

Price and Return

Return							COV	Beta
2004	2003	2002	2001	2000	1999	1998		
-0.24	6.56	-0.40	-0.42	-0.09	0.24	-0.35	0.33	3.4
3.43	-0.17	-0.32	0.00	0.00	0.12	-0.11	0.22	2.2
0.84	2.18	-0.23	0.09	0.02	0.13	-0.20	0.17	1.8
1.07	1.03	-0.13	0.72	-0.29	0.20	-0.46	0.16	1.6
2.31	0.04	-0.02	0.16	0.04	-0.11	-0.15	0.16	1.6
1.48	0.70	-0.41	-0.30	-0.21	-0.19	-0.02	0.15	1.6
0.89	1.57	-0.07	-0.54	-0.41	0.22	-0.11	0.15	1.5

Return							COV	Beta
2004	2003	2002	2001	2000	1999	1998		
1.01	1.89	0.00	0.25	0.22	1.23	-0.69	0.14	1.39
0.28	1.78	0.02	0.26	-0.42	0.16	-0.12	0.14	1.37
0.87	1.44	0.33	0.29	-0.04	0.23	-0.32	0.13	1.31
1.65	0.31	-0.24	0.24	0.08	0.09	-0.02	0.13	1.27
-0.22	2.70	-0.29	-0.70	-0.04	0.26	-0.32	0.12	1.26
1.28	0.98	0.75	-0.29	0.11	-0.30	-0.47	0.12	1.22
1.28	0.73	0.08	-0.01	-0.11	0.06	0.03	0.12	1.22
0.79	1.03	0.27	0.30	-0.03	-0.32	-0.16	0.12	1.17
1.37	0.22	0.03	0.18	-0.28	0.54	-0.55	0.12	1.17
0.08	2.02	-0.15	-0.39	-0.16	0.27	0.55	0.09	0.96
0.33	1.22	-0.24	0.09	-0.15	0.46	-0.07	0.09	0.90
0.45	0.92	-0.09	1.09	0.03	-0.04	0.34	0.09	0.90

Return							COV	Beta
2004	2003	2002	2001	2000	1999	1998		
0.30	0.73	-0.06	0.33	-0.59	0.83	-0.59	0.09	0.89
0.68	0.53	-0.09	0.01	-0.20	-0.03	-0.04	0.09	0.87
0.64	0.44	0.09	0.46	-0.02	0.00	-0.58	0.08	0.85
0.69	0.74	0.05	0.18	-0.08	0.03	0.17	0.08	0.85
0.79	0.02	-0.38	0.00	-0.22	-0.30	0.01	0.08	0.83
0.72	0.11	0.65	0.13	-0.54	-0.18	-0.32	0.08	0.79
0.79	0.33	0.43	0.50	-0.03	-0.17	-0.22	0.08	0.77
0.83	0.23	-0.06	-0.15	-0.23	-0.09	0.22	0.07	0.75
0.50	0.16	0.32	0.00	-0.72	0.00	0.00	0.07	0.72
0.40	0.57	-0.03	0.25	-0.09	0.20	-0.23	0.07	0.66
-0.04	1.04	0.39	0.44	-0.21	0.00	-0.17	0.06	0.64
0.29	0.87	0.27	0.09	-0.18	0.17	0.00	0.06	0.64
0.90	-0.36	-0.25	0.42	-0.15	-0.12	0.09	0.06	0.63
0.43	0.35	0.10	0.44	-0.06	0.19	-0.38	0.06	0.58
0.18	0.05	0.11	2.11	-0.22	0.15	0.01	0.06	0.56
0.29	0.43	0.05	0.90	0.13	0.20	-0.29	0.05	0.49
-0.01	0.48	-0.15	-0.28	-0.29	0.09	-0.44	0.05	0.48
-0.30	1.20	0.61	-0.11	-0.26	-0.09	-0.14	0.04	0.45
-0.31	0.90	0.56	-0.07	-0.46	-0.02	-0.02	0.04	0.37
0.23	0.24	-0.09	0.06	-0.13	0.39	-0.35	0.04	0.36
0.55	0.04	-0.32	-0.06	-0.10	-0.05	0.65	0.04	0.36
-0.16	0.59	0.13	-0.17	-0.28	-0.05	-0.11	0.03	0.34
0.16	-0.03	0.53	0.72	-0.19	-0.49	-0.11	0.03	0.34
0.11	0.77	0.28	-0.10	-0.07	0.59	-0.32	0.03	0.33

Price and Return

-0.07	-0.02	-0.05	0.44	-0.32	-0.28	-0.11	0.03	0.31
1.29	-0.04	-0.08	-0.21	0.13	-0.03	1.78	0.03	0.30
-0.01	0.57	-0.10	-0.45	-0.02	-0.10	0.02	0.03	0.27
-0.12	0.54	0.22	0.04	0.09	0.06	-0.75	0.03	0.27
0.02	0.00	0.02	0.20	-0.13	-0.19	-0.25	0.02	0.23
0.19	0.25	1.30	0.36	-0.18	-0.10	-0.58	0.02	0.23
0.63	-0.16	-0.09	-0.21	-0.05	0.05	0.41	0.02	0.22
-0.12	0.64	0.26	0.00	0.00	-0.05	-0.05	0.02	0.21
-0.14	0.70	0.54	0.18	-0.30	0.39	0.08	0.02	0.20
-0.38	0.77	0.85	0.63	-0.09	-0.03	-0.39	0.02	0.18
0.34	-0.16	-0.10	-0.01	-0.02	0.00	-0.02	0.02	0.18
0.34	0.04	0.54	-0.56	-0.08	-0.25	-0.23	0.02	0.16
0.20	0.23	-0.26	0.01	0.60	-0.47	-0.09	0.01	0.15
0.00	0.00	0.43	0.00	-0.13	-0.50	-0.18	0.01	0.13
-0.10	0.26	0.11	0.08	-0.15	0.09	0.01	0.01	0.11
-0.01	0.53	0.24	0.15	-0.14	0.00	0.90	0.01	0.08
-0.03	-0.17	0.00	-0.05	-0.09	-0.57	0.18	0.00	0.04
0.08	0.09	0.26	0.13	0.07	0.12	-0.18	0.00	0.02
-0.14	0.30	0.70	0.38	-0.14	0.02	0.03	0.00	0.00
0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.24	-0.01	-0.06
-0.19	0.51	0.96	0.11	-0.10	0.52	-0.51	-0.01	-0.07
0.44	-0.70	-0.02	0.15	-0.01	0.07	0.02	-0.01	-0.07
-0.08	0.01	-0.06	1.05	0.04	0.04	1.41	-0.02	-0.22
0.41	0.39	-0.19	-0.21	1.56	-0.11	-0.24	-0.03	-0.29
-0.07	0.60	-0.02	0.38	-0.16	4.43	-0.18	-0.07	-0.75
0.04	0.56	0.40	-0.07	4.46	-0.38	-0.06	-0.21	-2.13

0.624	0.538	-0.02	0.298	-0.2	-0.02	0.005	0.099	1

High Systimatic Risk

APPENDIX (3)

#	Company Name	ΔMV				
		2004	2003	2002	2001	2000
1	JORDAN INDUSTRIAL RESOURCES	-580000	9440000	-960000	-1760000	-400000
2	JORDANIAN EXPATRIATES INVESTMENT HOLDING	15502805.75	-921788.45	-2513968.5	0	0
3	NATIONAL PORTFOLIO SECURITIES	7375000	4200000	-575000	200000	-2200000
4	UNION INVESTMENT CORPORATION	42240000	10230000	-1430000	4730000	-2640000
5	READY MIX CONCRETE AND CONSTRUCTION SUPPLIES	9620000	120000	-60000	390000	90000
6	WOOLEN INDUSTRIES	606000	322000	-322000	-336000	-294000
7	UNION CHEMICAL & VEGETABLE OIL INDUSTRIES	2960000	1100000	-785000	-1732500	-2227500

High Systimatic Risk

1999	1998
880000	-2000000
837989.5	-1675979
500000	-1000000
1540000	0
-270000	-100500
-336000	480000
990000	-90000

High Systimatic Risk

ΔTDR %							ΔROA %					
2004	2003	2002	2001	2000	1999	1998	2004	2003	2002	2001	2000	1999
-11.7209	-4.9612	8.9831	3.6645	8.2321	3.2809	10.3106	-7.9470	11.9793	2.0425	-0.8217	5.1523	-7.6107
0.8200	-0.7205	-29.6044	30.3862	-34.1224	-1.4861	-5.9910	28.6050	44.6730	-22.4196	0.8809	0.6964	-1.3812
-1.9694	-6.6687	20.5561	0.2041	5.5370	-2.0624	-9.4002	11.1814	21.3446	15.0823	0.3910	-17.7770	4.5361
-2.2506	-0.3464	-4.6021	-1.4125	-2.3305	-0.6743	-25.0429	-3.8755	29.0931	12.4863	-12.5136	16.5575	-13.3843
-0.1086	-2.5705	7.7329	5.7200	9.8991	-8.3544	2.6795	1.1226	1.6693	-1.5736	-1.7621	1.6149	-2.7696
-7.5820	4.2974	-3.1745	0.9501	-1.6423	-5.4089	3.0585	12.2116	12.1868	3.9849	-5.0576	-7.3785	-4.9517
-42.5938	7.8299	2.1586	-7.5554	-2.4258	14.8799	5.5851	26.3330	-16.8708	11.3869	-2.2785	0.3194	-13.3256

High Systimatic Risk

1998
4.1081
0.1357
-3.2268
0.0701
-0.4506
-4.3084
-1.5880

High Systimatic Risk

ΔCR Times							GTA %					
2004	2003	2002	2001	2000	1999	1998	2004	2003	2002	2001	2000	1999
2.3041	-0.1739	0.0610	0.7723	-0.1120	-0.3079	0.0601	-2.7909	16.5876	17.6449	1.1975	10.5849	-6.3049
-17.2242	51.9240	8.7308	-30.9471	29.7963	-0.1900	1.4878	110.3049	28.1580	-43.2519	45.4748	-34.9109	-4.3367
0.3862	0.8444	-5.2883	-0.2407	-9.2931	4.9688	7.1193	50.3222	27.3629	31.1882	-18.1493	-38.0540	0.7204
32.2362	9.7289	-11.3442	14.5614	-8.2593	2.6352	3.2339	83.5647	60.4355	65.8489	-13.2596	-2.4092	-16.3975
0.4124	-0.6286	0.5890	-0.2094	-0.0187	0.3338	-0.1768	48.9348	-3.3473	12.5107	10.3511	24.9133	-7.6442
5.5206	-2.4598	2.2688	-0.7141	0.7351	1.9180	-1.3597	24.7358	6.0462	-8.1312	-22.6325	-11.9145	-9.0884
3.1636	-0.1793	0.0801	-0.1002	0.0605	0.3043	0.0151	-0.7973	-20.3507	2.2707	-36.7099	-29.6269	8.0149

High Systimatic Risk

	SIZE Ln						
1998	2004	2003	2002	2001	2000	1999	1998
15.9985	16.8862	16.9145	16.7610	16.5985	16.5866	16.4860	16.5511
-9.4057	16.7212	15.9778	15.7297	16.2963	15.9214	16.3509	16.3952
-11.7498	16.1713	15.7637	15.5218	15.2503	15.4506	15.9295	15.9223
-12.7162	17.3869	16.7795	16.3068	15.8009	15.9431	15.9675	16.1466
6.6071	16.1630	15.7646	15.7987	15.6808	15.5823	15.3598	15.4394
5.9830	14.2512	14.0302	13.9715	14.0563	14.3129	14.4397	14.5350
16.5632	15.3764	15.3844	15.6119	15.5895	16.0469	16.3983	16.3212

Medium Systimatic Risk

#	Company Name
1	ARAB FINANCIAL INVESTMENT
2	MIDDL EAST PHARM. AND CHEMICAL IND. & MEDICAL APPLIANCES
3	JORDAN NEW CABLE
4	JORDAN TRADE FACILITIES
5	JORDAN SULPHO CHEMICALS
6	NATIONAL CABLE & WIRE MANUFACTURING
7	JORDAN CEMENT FACTORIES
8	THE JORDAN PIPES MANUFACTURING
9	ARAB POTASH
10	THE UNIFIED FOR ORGANIZING LAND TRANSPORT
11	MIDDLE EAST COMPLEX FOR ENG., ELECTRONICS AND HEAVY INDUSTRIES
12	JORDAN STEEL

Medium Systimatic Risk

APPENDIX (4)

ΔMV					
2004	2003	2002	2001	2000	1999
5500000	2425000	0	600000	440000	-240000
3610000	8265000	95000	950000	-2660000	855000
30984000	14240000	2480000	1680000	-240000	1120000
6144023.8	671994.4	-671994.4	545995.45	167998.75	167998
-1235649.67	1215695.52	-180103.04	-1440824.36	-90051	450257
12000000	4650000	2025000	-1125000	375000	-1500000
416462329.4	137208924.2	13902225.8	-1208889	-22364450	11484447
6110000	3900000	812500	682500	-65000	-1137500
529902480	69987120	9998160	47491260	-100814780	125810180
700000	6050000	-550000	-2300000	-1150000	1500000
27823849.18	26940150.82	-2684000	1320000	-2640000	5720000
24000000	25500000	-2700000	15900000	450000	-600000

Medium Systimatic Risk

	ΔTDR							
1998	2004	2003	2002	2001	2000	1999	1998	2004
-2600000	9.3585	21.2643	7.5906	2.3475	-6.6420	1.5587	-14.9165	-0.6623
-760000	9.1775	1.0876	7.6056	5.0865	2.5699	-2.4213	0.3592	-8.9431
-2320000	18.4507	8.6003	0.6204	-9.7506	0.7576	22.2360	1.0928	2.5754
461997	-18.4709	-3.1454	-1.3975	6.5137	14.8477	6.5524	-1.0637	4.7282
-810464	15.2236	2.6248	1.9862	2.3825	2.3365	-2.3466	-0.0626	6.8035
-4350000	7.9572	3.2100	-4.6255	4.5713	0.2052	-0.7328	-0.4589	5.8073
4835557	-4.1020	-5.5497	-4.8911	-1.7123	-2.1017	-4.8946	-1.6089	8.6659
-682500	-3.0475	6.7589	-10.8375	6.5556	-3.9192	-5.3867	0.8137	4.5712
-284114380	2.7473	1.4220	2.6534	0.8550	-11.1804	2.4814	4.3504	23.5472
-3050000	54.7074	-2.5493	6.2903	-6.0700	-2.7790	15.3842	-1.7451	-1.9235
-880000	8.5206	-1.2489	10.5460	-0.9631	6.7556	-2.2591	-7.3490	0.6454
3750000	-4.6184	-10.9734	7.1700	12.1099	-24.0289	0.7342	7.4274	3.3664

Medium Systimatic Risk

ΔROA						ΔCR			
2003	2002	2001	2000	1999	1998	2004	2003	2002	2001
12.8907	3.6851	23.4568	-12.2053	24.1362	-30.0711	-0.5071	-4.3997	-10.1971	-13.2852
8.0370	0.3451	-7.8114	7.6143	-1.9993	-4.4099	-0.2822	-0.0630	-0.6662	0.0092
-0.1459	-0.2274	1.8840	1.7444	0.9225	-3.5663	-1.3614	1.1677	0.2437	0.1395
0.5072	-0.1276	0.6418	-0.5302	1.0327	5.4648	1.0297	0.0380	0.0595	-0.1759
-4.2893	0.7394	2.4941	-1.6656	-4.4772	-3.5196	0.1324	-0.3936	0.0079	-0.6241
0.2629	-0.2499	1.8031	-1.0683	1.6140	-3.8727	-0.1420	-0.0222	-0.1940	0.0513
5.3716	4.1906	3.3656	-3.1664	1.9835	-2.2868	1.4226	0.9840	-0.5302	-0.4522
-0.7056	3.9111	0.3046	2.2998	-2.6427	-1.5697	0.4552	-0.6746	1.1090	-0.4125
-19.9089	-3.2070	-0.7260	-0.0258	1.1692	1.4304	0.1361	-0.1474	-0.3163	-0.0595
1.7072	-0.5528	-2.4571	-0.3119	-4.0185	-2.0436	0.1028	-0.0103	0.1562	-0.0468
0.8424	0.5529	-0.3407	-0.4562	-0.3414	0.2889	-0.4236	0.7156	-0.5997	-0.0004
-0.0120	1.5414	2.2322	4.9686	-3.8146	2.6141	0.5361	0.6006	-0.0493	-0.0866

Medium Systimatic Risk

			GTA					
2000	1999	1998	2004	2003	2002	2001	2000	1999
22.1467	-1.6272	6.2362	32.6603	44.5755	14.3501	3.1738	-24.2222	-12.6330
-0.0087	0.5427	0.3322	3.0545	4.2328	1.1129	-1.8284	3.9496	0.8200
-0.4737	0.0584	0.1069	103.9388	21.5621	3.5965	-12.9974	9.3993	40.7975
-0.4351	-0.6686	0.3379	5.9214	0.9078	3.3168	19.1875	30.0591	13.3994
0.9054	-0.1666	-0.1160	54.0197	-3.4608	-10.9026	-4.2263	-8.5548	-13.9769
-0.3462	0.4193	0.0742	28.0745	4.0336	-9.2133	6.4846	-3.8505	-16.4159
0.4080	0.2188	0.4941	22.7853	5.7135	1.1210	1.7937	-0.0188	-6.7908
0.2956	0.3002	-0.0587	4.4859	11.9773	-9.8656	9.8107	-3.0383	-10.4569
1.5584	-0.2883	0.6616	7.5328	-19.5977	2.9068	6.1031	-5.7923	10.0315
-0.6105	-1.2228	-0.5276	888.8121	-0.9398	6.8728	-8.2425	0.9933	28.9522
0.3461	0.1421	0.3771	59.5287	41.5717	24.5673	1.1642	16.7741	0.1774
0.7940	0.0544	0.2223	1.3128	-11.0811	20.8413	25.9002	-20.4913	-0.9810

Medium Systimatic Risk

	SIZE						
1998	2004	2003	2002	2001	2000	1999	1998
-39.1566	15.7248	15.4422	15.0735	14.9394	14.9082	15.1856	15.3206
14.3583	16.2215	16.1914	16.1499	16.1389	16.1573	16.1186	16.1104
3.2278	17.5277	16.8151	16.6198	16.5845	16.7237	16.6339	16.2917
1.3223	15.8273	15.7698	15.7608	15.7282	15.5526	15.2898	15.1641
-1.8196	15.9651	15.5332	15.5684	15.6838	15.7270	15.8164	15.9670
-5.7483	16.9646	16.7172	16.6777	16.7743	16.7115	16.7507	16.9301
-3.1551	19.2086	19.0033	18.9478	18.9366	18.9188	18.9190	18.9894
4.7424	16.1436	16.0997	15.9866	16.0904	15.9968	16.0277	16.1381
10.5816	19.7258	19.6532	19.8714	19.8427	19.7835	19.8431	19.7475
0.7833	18.6067	16.3153	16.3248	16.2583	16.3443	16.3344	16.0802
-8.3749	18.8084	18.3413	17.9937	17.7740	17.7624	17.6074	17.6056
17.8617	17.2490	17.2359	17.3534	17.1640	16.9337	17.1630	17.1729

Low Systimatic Risk

APPENDIX (5)

#	Company Name	ΔMV%					
		2004	2003	2002	2001	2000	1999
1	JORDAN PHOSPHATE MINES	56250000	78750000	-6750000	39900000	-47340000	55000000
2	THE JORDAN WORSTED MILLS	19800000	10000000	-1920000	160000	-5320000	-800000
3	UNION LAND DEVELOPMENT COPRPORATION	8224999	1950000	350000	1300000	-50000	0
4	UNITED FINANCIAL INVESTMENT	3280000	2000000	120000	400000	-200000	60000
5	ARAB INTERNATIONAL HOTELS	34560000	640000	-15426722	4532597	-4025875	-17760000
6	JORDAN PAPER & CARDBOARD FACTORIES	8025000	1125000	3975000	675000	-6225000	2125000
7	ARAB ELECTRICAL INDUSTRIES	3780000	1200000	1080000	840000	-60000	-360000
8	GENERAL INVESTMENT	18100000	4100000	4510000	-2380000	-4620000	-1960000
9	JORDAN POULTRY PROCESSING & MARKETING	1740000	480000	720000	0	-4703558	0
10	JORDAN ELECTRIC POWER	70750000	44800000	11740000	26160000	1942299	8957701
11	THE PUBLIC MINING	2625000	3060000	820000	650000	-380000	0
12	NATIONAL ALUMINIUM INDUSTRIAL	4590000	7290000	1800000	540000	-1350000	1080000
13	CENTURY INVESTMENT GROUP	3990000	-2520000	-2310000	2730000	-5370000	-1620000
14	IRBID DISTRICT ELECTRICITY	6360000	3840000	1040000	3040000	296000	1974000
15	INTERNATIONAL TOBACCO & CIGARETTES	10650000	2700000	8036292	35103708	-3720000	2160000
16	NATIONAL STEEL INDUSTRY	2240000	2320000	280000	2440000	320000	400000
17	VEHICLES OWNERS FEDERATION	-24000	804000	-300000	-780000	-1152000	336000
18	NATIONAL CHLORINE INDUSTRIES	-2322000	10440000	3312000	-648000	-2160000	-792000
19	REAL ESTATE INVESTMENT/ AKARCO	-3750000	5700000	2250000	-300000	-741967	-94295
20	UNIVERSAL CHEMICAL INDUSTRIES	570000	495000	-195000	135000	-315000	675000
21	ZARA INVESTMENTS	58750000	3750000	-48750000	-10000000	47300000	39200000
22	JORDAN PRESS & PUBLISHING /(AD-DUSTOUR)	1810000	6025000	1150000	-1850000	-4150000	3434678
23	DAR AL- DAWA DEVELOPMENT & INVESTMENT	17400000	41000000	23040000	18240000	-5880000	900000
24	JORDAN PRESS FOUNDATION / AL-RA'I	8145000	33255000	9405000	8790000	-1950000	9990000
25	JORDAN TANNING	-250000	-70000	-180000	1150000	-1220000	-1480000
26	JORDAN EXPRESS TOURIST TRANSPORT	10692000	-324000	-756000	-2484000	1404000	-324000
27	JORDAN CHEMICAL INDUSTRIES	1014332	2017759	-409005	-3244775	-136335	-777110
28	JORDAN CERAMIC INDUSTRIES	3925000	4400000	1450000	250000	550000	350000
29	ARAB ALUMINIUM INDUSTRY/ARAL	270000	0	202500	1890000	-1417500	-2565000
30	JORDAN NATIONAL SHIPPING LINES	16597000	708000	-4253261	1872334	-1109532	-693457
31	ARABIAN STEEL PIPES MANUFACTURING	9120000	-2820000	-1800000	-4920000	-1260000	1200000

Low Systimatic Risk

32	THE ARAB INTERNATIONAL FOOD FACTORIES	-1440000	4860000	1560000	0	0	-300000
33	NATIONAL POULTRY	-7200000	8500000	14875000	4250000	-325000	12300000
34	INTERNATIONAL CERAMIC INDUSTRIES	-1766015	2960000	1760000	800000	-120000	-40000
35	AL-SHARQ INVESTMENTS PROJECTS	2937500	-1645000	-1175000	617500	-220000	0
36	JORDAN WOOD INDUSTRIES (JWICO)	1331250	168750	1312500	-1987500	-375000	-1575000
37	THE INDUSTRIAL COMMERCIAL & AGRICULTURAL	1800000	1620000	-2520000	1097393	3223405	-950798
38	INTERMEDIATE PETRO CHEMICALS IND.	0	0	240000	0	-80000	-640000
39	JORDAN DAIRY	-1023750	2178750	813750	525000	1496250	472500
40	THE ARAB INTERNATIONAL FOR EDUCATION & INV.	-810000	26122500	9517500	5265000	-5670000	0
41	JORDAN HOTELS & TOURISM	-1000000	-6700000	0	-2000000	-3800000	-7500000
42	THE ARAB CHEMICAL DETERGENTS INDUSTRY	665004	678304	1649210	731504	365753	565253
43	ARAB CENTER FOR PHARM. & CHEMICALS	-2150000	3600000	5000000	1950000	-850000	100000
44	ARAB ENGINEERING INDUSTRIES	0	0	8315000	0	0	0
45	JORDAN HIMEH MINERAL	0	0	0	0	672053	0
46	AL-ZARQA EDUCATIONAL & INVESTMENT	-5932500	10678500	11577750	1830000	-754733	3298639
47	JORDAN PETROLEUM REFINERY	52480000	39424000	-1344000	11008000	-1088000	4800000
48	THE UNION TOBACO & CIGARETTE INDUSTRIES	13075000	19325000	-2300000	20400000	750000	700000
49	UNIVERSAL MODERN INDUSTRIES	3060000	2100000	-1260000	-1800000	5160000	-420000
50	JORDAN INDUSTRIES & MATCH /(JIMCO)	-162000	936000	-36000	432000	-216000	1298000
51	PEARL SANITARY PAPER CONVERTING	325000	-2200000	2850000	-500000	6530000	-680000

Low Systimatic Risk

1998
-96800000
-1040000
-700000
315000
600000
1100000
-600000
3920000
0
800000
-390000
-2100000
-540000
-2850000
2520000
-800000
-2772000
-1512000
-94296
-915000
11000000
-1489334
-3780000
250000
-650000
0
163602
-5550000
-2460000
-9777743
7020000

Low Systimatic Risk

-300000
6100000
-920000
2720000
-1875000
-600000
-280000
35000
1620000
8000000
-997506
200000
0
911727
464489
1024000
10550000
-1200000
-376250
-120000

Low Systimatic Risk

ΔTDR %							ΔROA %						
2004	2003	2002	2001	2000	1999	1998	2004	2003	2002	2001	2000	1999	1998
-1.6388	-4.8686	-2.7608	-8.4744	16.0348	4.1293	-1.8093	-0.2180	0.0125	1.3950	17.2200	-11.8127	-6.3388	0.2254
-9.8847	-6.6132	0.3599	-5.5602	-2.3669	-0.5155	6.8818	-0.7756	-0.8584	-1.4846	1.0298	1.3297	-1.5854	-3.2698
9.9560	0.3770	-0.7029	2.3778	2.2870	-0.1053	-0.0529	-4.2078	1.1963	-4.3547	11.4659	-2.1463	1.1484	0.6171
12.9646	1.2922	-26.5253	31.3139	-2.3223	-20.4395	21.9941	-3.8700	13.4610	-0.4442	6.1618	-8.6090	5.3872	-0.6611
-5.2018	-6.8119	1.0568	-1.7554	10.6721	-0.0454	8.8859	1.9241	2.7643	0.3889	-3.3586	-1.1359	-2.1239	-2.3505
-4.6880	-1.1255	-7.3615	4.8331	-3.4418	0.9702	-15.3682	3.8005	-2.2419	3.0436	3.7110	5.3039	3.0774	-2.7708
-7.2290	2.2075	-9.3839	0.8275	9.4809	2.1887	1.0587	3.4412	-5.8016	-2.6350	10.3343	0.7320	-2.9582	0.6014
0.7557	-1.4867	3.0399	-0.0414	-6.6855	-1.6466	-0.9470	-3.7766	3.7685	-2.2231	0.0172	-3.0875	-0.3551	-0.8170
8.3505	-6.6544	18.3369	32.5721	-0.1678	-31.9897	6.4050	-2.3051	0.2706	1.3040	-5.1697	3.5240	25.5548	-25.6406
-0.3659	-0.4463	-0.7772	-2.4296	-4.7479	-1.4880	-0.1080	0.0239	0.2392	-2.5664	-0.1412	4.4348	-0.4414	0.1244
-2.6714	4.4642	-1.1287	-1.8153	-3.3744	2.2777	-4.4944	5.3548	11.8859	-7.5024	-17.5824	19.5136	3.5113	2.3601
3.7786	10.0007	0.4501	0.2978	-14.7020	-7.2555	11.1129	-1.2091	1.7444	-0.8746	2.8733	0.7405	-2.1385	4.6664
-10.3397	-2.1380	22.1333	-6.2086	25.5132	-4.2270	31.4989	6.8476	21.2940	-22.6034	22.9310	-21.1498	1.9315	4.3500
0.0788	0.1534	0.1276	0.2778	0.2993	-0.8175	0.1132	-0.0059	-0.0920	-0.0266	0.1581	-0.1852	-0.0578	-0.0179
7.0856	-8.9842	6.3301	-13.8767	7.5677	-14.5458	6.2259	-2.9505	-3.9125	2.3576	2.9384	1.5248	-0.9030	2.1517
-3.3491	-1.2949	-0.9637	-1.5879	-25.3508	16.6836	-16.5468	-0.7774	0.8108	-1.9407	-4.5019	15.9141	9.4617	-6.6111
-2.7451	-37.4193	16.5122	14.2912	5.9948	4.1822	-0.5201	-37.9954	108.0881	-63.8870	-0.3896	-5.3264	-3.4243	-1.1416
-11.2505	-6.6575	22.1936	-1.8003	-3.0351	-4.5632	-3.6610	-0.4525	7.2473	-3.1054	5.8057	-5.6452	-2.4182	-2.4492
1.7674	-5.6493	5.8146	-7.6505	1.3992	-1.1498	5.0058	-0.0547	1.9918	-0.2483	0.5341	-0.7415	-0.9713	-0.4933
-2.0844	-3.1399	-9.4891	4.1321	-10.0299	-2.4221	5.7005	0.6442	0.3163	-1.3247	0.2694	-0.7324	2.6746	-1.0666
1.3304	3.9594	3.2901	3.2936	-18.3925	-6.2882	17.2503	3.9301	-1.0181	-0.9800	-1.2225	0.4038	-4.3776	0.4895
103.0508	-99.2100	-11.8027	-4.8949	-0.1104	6.0230	-6.8367	-23.2361	13.8173	5.8146	3.5206	1.4409	3.3378	-7.0275
0.5714	0.7049	-1.3920	0.3038	-5.1046	-1.6729	-4.0175	0.3511	-1.3108	1.8033	0.7881	1.8372	-7.4747	1.2232
0.4951	0.8155	0.0019	0.4547	-15.9399	3.2301	2.7410	2.8511	4.4499	1.6162	0.7088	-1.4384	5.1119	-0.1433
1.4077	-1.0019	-0.0185	-4.9386	-8.0834	1.7690	-4.8044	3.6492	-3.8592	-1.3337	-1.6821	0.0069	-2.8750	-3.1729
-7.5543	-2.0243	-1.9105	-6.2004	-13.3819	-1.0156	-6.6407	10.9933	0.9997	-5.7804	-6.6108	3.6198	3.0831	5.9914
1.9042	-0.7647	-1.6419	-7.1313	-11.8257	1.8128	1.5361	-1.6101	0.6014	-4.7969	5.6631	-2.8409	-0.8617	0.6823
1.6935	-0.3105	1.4307	-5.8920	-9.8566	-5.8832	-8.6296	-2.7259	-0.2972	-0.4425	1.6597	-2.3970	0.6797	0.7342
14.7621	6.5189	-2.3168	0.3246	-7.7556	-1.8562	-10.8828	-2.7313	-0.9494	-2.7386	3.3786	-0.8458	-0.4599	-2.1060
-1.9692	9.5432	15.9877	-20.6741	5.3980	-1.0333	-8.1519	-4.9261	16.9444	-27.1174	41.8967	-12.0305	-5.4237	-4.7436
2.9797	6.9170	-15.4768	9.3500	-7.6777	2.4362	-4.6815	4.4499	3.0497	-3.0573	0.6299	0.1581	-0.2651	0.2321

Low Systimatic Risk

-0.8014	-0.6154	0.4889	0.1305	0.2815	0.4507	-0.2364	-4.7015	-0.5194	1.0396	1.4611	3.2410	1.3104	0.4354
-3.1053	3.2379	-9.5511	-17.3997	-4.2318	-6.3083	15.1290	0.7350	-2.9566	5.6926	7.5176	0.9960	4.4769	-5.7276
-5.8536	-2.2465	-11.4360	-8.8694	2.7935	1.3740	1.6240	-7.2396	-3.4701	-3.4694	14.7168	-0.9122	1.0184	-1.4062
-0.2105	0.1891	-0.8596	-5.0700	-0.5844	20.8211	-3.2980	3.6652	-1.1901	-0.3264	-2.2577	4.7416	-3.5944	-1.2416
0.3888	-0.3095	-43.6811	9.4180	-1.4910	0.3210	2.2180	7.0827	-15.1421	16.6741	-2.6241	1.3614	2.5562	1.2795
3.3940	-0.3514	11.1450	-1.1028	-3.0810	9.7603	-3.5631	-5.1909	1.6055	-1.0747	-7.2838	1.0915	-0.6082	1.4597
-135.4505	48.1366	17.0242	15.0439	17.9179	14.4308	12.0901	34.5536	-28.8060	0.4148	5.9555	-5.2377	0.3739	-7.0382
-1.5193	5.3513	-3.5087	-0.6454	-4.6794	-7.2878	1.0119	-0.9256	-2.6621	0.3505	0.6701	-2.4091	1.1588	-4.5103
-0.1966	-2.0871	-0.6370	-4.4789	-13.3975	-4.8210	13.1879	-1.2584	-0.6177	-0.6750	0.3266	1.9135	3.1826	-5.0387
-1.3882	-0.8763	2.9992	1.0501	4.3650	4.8624	18.1523	2.2573	3.8423	-0.9601	-1.9567	-1.5800	-5.2975	-2.6912
3.7060	-3.3037	2.6825	1.1812	-13.2700	-8.4900	1.4183	-0.7926	-2.9300	-0.7523	-3.8139	3.0327	1.4191	0.6503
-1.9958	1.7399	1.4698	-0.9546	-0.7248	-4.6790	-4.0284	-3.6574	-1.9186	2.4907	1.1906	5.5189	-5.3454	1.1234
4.5426	7.9154	-14.4851	1.1295	1.5555	17.5365	-0.1098	2.4918	1.3128	-10.9338	8.3252	-3.2322	-5.8411	0.0000
0.4657	-0.7800	-1.2702	2.0601	-5.7141	5.5270	-7.3674	0.8644	-1.7089	-0.3053	-0.4248	-1.5299	2.4307	-1.0363
-2.7476	9.2693	13.0141	2.4752	-6.6706	2.9487	-18.4167	0.2064	-5.6740	-2.5535	-1.0385	2.3789	0.0601	5.5920
2.4722	-5.1290	7.3599	-9.1879	6.3816	-9.6042	-0.3092	-0.2573	0.4060	-0.7323	-1.2052	0.8855	1.0334	0.0248
-2.0881	-6.6694	7.6531	-10.8253	-15.8290	8.2928	-6.6471	-5.3202	-0.5836	-3.6509	-1.6196	2.6824	5.3861	4.8878
0.6394	-4.9740	-1.2773	-1.8972	-15.0632	3.1487	-20.1984	5.8789	-1.5567	9.4363	-15.1880	9.7609	-2.7693	-2.0377
-14.8779	9.6777	-18.0864	11.7137	0.9121	-53.1753	13.8198	0.9403	-16.0122	10.0059	9.1536	2.6566	-1.5052	-4.9944
18.2169	11.5462	1.4749	-7.8330	-41.5174	-1.0157	-5.0675	2.2192	-6.6209	-5.1653	9.6885	11.1888	5.8625	3.6797

Low Systimatic Risk

ΔCR Times							GTA%						
2004	2003	2002	2001	2000	1999	1998	2004	2003	2002	2001	2000	1999	1998
-0.6561	1.0221	0.8567	-0.0723	-0.6537	-0.2366	0.0598	-0.9765	-8.4501	-3.7905	-10.3415	-9.9787	-1.3462	-1.6375
-10.2731	11.6320	-0.2587	1.4941	2.0309	0.0355	-0.6676	31.5256	18.5480	0.2989	11.2438	4.5086	1.9657	18.0370
-17.8653	-1.6001	11.3788	-6.9196	-4.1299	5.0103	-0.5964	78.7232	3.3325	4.1692	7.9116	-8.7097	0.2329	-0.2841
-1.0083	-1.6057	3.4622	-6.0620	1.3713	3.9011	-3.2653	40.7187	28.4004	-29.6624	65.6895	1.1639	-17.6590	74.4545
0.3115	-1.8808	-1.2144	1.0122	0.7666	-0.5077	2.4446	19.9547	-3.1023	1.0178	2.7396	25.5362	-0.0445	13.1328
0.0744	-1.1616	-0.1572	1.3613	0.0931	-0.1563	0.6772	-1.1475	-1.0689	-1.7638	13.0746	-5.0861	-13.3133	-4.0270
0.7318	-0.1234	0.6187	-0.0138	-0.4704	-0.3389	-0.1337	-8.6552	-1.9280	-11.5115	11.1406	7.4870	-3.3244	-0.6281
-1.3799	-0.5819	-2.2996	0.4079	4.4487	0.7774	0.5096	13.7975	11.0278	17.7207	7.4415	3.0215	5.1077	6.1309
-0.3180	0.1692	-0.0120	-7.7985	1.5899	5.8307	-0.6001	13.7273	16.1212	38.9692	51.1847	25.3645	-32.5867	-20.7118
0.0031	0.0193	-0.0725	0.1460	0.0268	0.0172	0.0509	12.2467	4.8908	3.3929	10.5947	5.9458	5.2367	3.6557
1.6181	-3.2581	1.9565	0.7221	1.9684	-0.6397	1.1589	16.4349	10.3784	-10.2378	-3.7746	34.1908	3.7426	-2.0673
-0.1323	-1.2819	0.2072	0.3818	1.4140	0.2417	-0.0940	9.5816	19.6244	2.7880	3.4792	-12.1507	-9.4833	20.6269
0.5613	0.5507	-0.6540	0.3569	-2.2367	-5.1858	-2.9247	-3.4998	-8.6989	-4.7231	-5.3725	9.8926	-3.4071	113.7389
-0.1077	-0.0328	0.0626	0.2392	0.0643	-0.1247	-0.0163	2.1272	2.9864	2.8929	4.7139	13.3257	-1.0780	12.5046
-0.3985	1.0509	-0.0875	0.1782	-0.6056	0.4376	0.1302	14.2117	-10.3392	15.3116	16.9529	74.8769	-11.9406	13.5866
2.4590	0.0935	0.1052	-0.0895	2.9283	-1.3169	1.3163	-3.4925	-0.2311	-3.2217	15.9439	-7.7402	15.5176	-33.2130
1.0550	0.4455	-0.2121	-0.5506	-4.8658	-3.4875	0.3306	-1.0294	16.8086	-42.5309	20.9961	9.6526	6.5709	4.8936
0.2867	0.2499	-1.2293	0.3794	0.0590	0.2615	0.2628	-9.9549	0.4424	36.8848	1.1579	-6.7893	-5.5517	-4.6664
0.7645	0.4123	-1.8566	1.4155	-1.7593	1.7318	-0.6775	2.6671	-1.8804	5.2452	-5.9561	60.8051	-2.2051	3.2220
1.0688	1.2210	1.7530	-0.4939	1.1131	0.2021	-0.3694	-2.7169	-4.3024	-11.5262	6.9594	-7.8928	-4.1132	12.9846
0.5380	0.1993	-0.1618	-0.6700	0.7822	-0.1344	-0.4267	-2.9080	-4.8739	-4.6048	-2.8285	16.7183	25.1163	48.3360
1.3235	-1.4169	1.9334	0.1770	0.2255	-0.0958	0.2543	248.1912	-50.6782	-6.1493	-1.1569	6.4876	24.4248	-8.9816
-0.3035	-0.4778	0.5638	-0.0874	1.4482	0.3459	0.6194	8.2535	9.8105	8.0208	9.0801	9.1664	3.3960	10.6101
-0.0776	0.0716	0.4761	0.2115	3.6140	-0.1648	-0.1784	17.0368	12.5436	3.0263	7.0260	3.0173	11.2302	5.6424
-2.4281	1.3529	0.0702	3.8695	2.3812	-0.2664	0.9585	0.6578	-5.4645	-0.6996	-5.7276	-3.0375	4.3075	-2.2697
-0.9196	2.1385	0.1762	1.2966	-1.1303	0.4321	0.6257	13.9978	-8.4712	-8.5583	-11.2195	-4.2451	-0.0903	-8.7884
-0.3123	-0.2025	0.3116	1.2503	0.2667	-0.0225	0.0119	4.7592	20.2300	5.9886	1.3845	-5.0595	4.6097	5.8494
-1.8032	0.3648	-0.0546	2.2119	0.4732	0.2948	0.6996	2.4843	3.0728	2.9975	-3.4557	-5.9469	-3.6254	-7.9310
-0.7698	-0.8121	0.2281	0.1006	0.7802	0.0656	0.1858	20.8133	6.2608	-5.2535	2.7214	-5.8055	-3.9804	-6.2977
1.3389	-0.1660	-2.4653	2.4351	-0.3378	0.0956	0.4027	108.1541	41.3224	-65.1998	3.2276	-16.0152	-10.6322	-13.5418
-0.7533	-3.9823	5.0808	-1.8069	1.6999	-0.3944	0.5897	14.9291	13.6957	-18.0034	13.4457	-3.1756	4.2714	-4.7927

Low Systimatic Risk

-0.9467	0.4105	-1.4598	0.4452	-46.0245	-15.8971	8.0458	-1.3890	93.3622	1.2020	2.2009	7.0992	3.8347	1.7009
0.3818	-0.3410	0.7190	0.4916	0.2425	-0.0806	-0.1865	5.0229	12.4217	-0.2793	-18.6352	23.8115	17.8087	56.6138
0.5059	0.0197	0.7243	0.9214	-0.1663	-0.5399	0.2974	1.2814	2.2222	-8.8087	4.3868	-3.5631	-4.5749	-6.0100
-0.7296	2.1657	-0.3852	0.1623	0.2109	-1.6092	-6.9236	-4.7258	-5.2814	-5.1353	-5.3444	-0.4905	29.1424	14.8520
0.3244	-0.0159	0.9629	-0.1140	-0.0668	0.1476	0.0196	5.7212	-9.7181	-47.6308	53.7989	-1.0371	0.3788	-1.1950
-0.0446	-0.2938	0.3433	-0.0894	0.0036	-0.1883	0.0604	-17.9293	-14.5000	15.1138	-13.6840	-2.4887	57.3935	-4.4583
0.6989	-0.0928	-0.1122	-0.0181	-0.1373	-0.1141	-0.2276	7.3783	-12.5138	-16.1571	2.0243	-13.0098	-3.5485	-7.5704
0.0754	-0.2092	0.0257	-0.2989	0.0704	0.3648	-0.0861	-7.1872	6.4911	6.3710	6.5037	10.6633	1.5279	5.9570
0.0597	0.0016	0.0478	0.3864	0.0365	-0.1908	0.0824	0.3950	7.7783	0.1712	0.3450	-3.8821	-1.5800	29.6129
-0.2608	-0.0274	0.4693	-0.0282	0.0296	-0.2058	-0.1480	-2.6023	-6.1161	-5.5323	-7.3184	2.4792	6.0713	39.3423
-1.0588	-0.1794	-0.5959	-0.2126	1.4506	0.6687	-0.0033	15.3130	14.3503	3.4314	4.4509	2.0786	-8.8008	5.6257
1.3942	-0.9853	-1.5471	0.5759	0.5808	2.3441	1.1034	-0.2713	1.0878	6.2704	1.0715	6.5655	-4.2440	-3.6305
-0.4045	-0.5696	1.6728	-0.3315	-0.6038	-4.6418	5.2322	-7.3444	-4.6791	-14.7144	1.0524	-16.4494	26.5652	4.4766
-11.2298	6.5736	10.2973	-40.8360	50.0624	-41.3562	51.6755	2.2246	0.1180	1.2697	0.4813	62.6299	5.5323	233.8118
-0.2615	-1.7180	-0.3206	-0.4202	1.5991	1.5290	-0.2028	-0.1272	17.9638	30.4563	15.5245	6.5288	15.9120	8.7027
0.1486	-0.3482	0.2229	0.0555	-0.0691	0.1969	0.0186	14.2266	-18.4936	4.7142	6.7862	-2.8072	-38.0736	-0.5711
-0.0894	-0.0765	-0.2796	0.1377	0.3846	-0.2490	0.2495	28.7858	25.7731	27.0646	-4.2877	15.5492	64.9341	20.9743
0.4691	3.3753	0.6419	0.4003	1.7527	-0.1354	0.7036	7.0561	-5.3150	0.2271	-10.3288	-10.3149	1.0567	-27.5070
0.5086	-1.4747	1.5558	0.0737	-0.3444	1.1273	-0.1781	-17.2250	9.4117	-5.8055	22.9786	-5.9530	2.8262	-12.0050
-0.5664	-2.7262	0.1517	2.4376	1.4484	-0.0096	0.0781	41.9432	-36.5691	10.1403	13.6198	-7.4897	-10.5106	-10.1020

Low Systimatic Risk

SIZE Ln						
2004	2003	2002	2001	2000	1999	1998
19.5723	19.5821	19.6704	19.7090	19.8182	19.9233	19.9368
18.1465	17.8724	17.7023	17.6993	17.5928	17.5487	17.5292
16.1451	15.5645	15.5317	15.4908	15.4147	15.5058	15.5035
15.5146	15.1730	14.9230	15.2749	14.7700	14.7584	14.9527
18.0298	17.8478	17.8793	17.8692	17.8422	17.6148	17.6152
16.2899	16.3015	16.3122	16.3300	16.2071	16.2593	16.4022
15.7471	15.8377	15.8571	15.9794	15.8738	15.8016	15.8354
16.8685	16.7392	16.6346	16.4715	16.3997	16.3699	16.3201
16.3775	16.2489	16.0994	15.7703	15.3570	15.1309	15.5253
19.4431	19.3275	19.2798	19.2464	19.1457	19.0880	19.0369
14.8721	14.7200	14.6212	14.7292	14.7677	14.4736	14.4369
16.5776	16.4861	16.3069	16.2794	16.2452	16.3748	16.4744
16.4094	16.4451	16.5361	16.5845	16.6397	16.5454	16.5800
18.1986	18.1776	18.1481	18.1196	18.0735	17.9485	17.9593
17.9120	17.7791	17.8883	17.7458	17.5892	17.0303	17.1574
15.7048	15.7403	15.7426	15.7754	15.6275	15.7080	15.5638
14.7519	14.7622	14.6069	15.1608	14.9702	14.8781	14.8144
16.4274	16.5322	16.5278	16.2139	16.2023	16.2727	16.3298
16.0547	16.0283	16.0473	15.9962	16.0576	15.5826	15.6049
15.0326	15.0602	15.1041	15.2266	15.1593	15.2415	15.2836
19.1269	19.1564	19.2064	19.2535	19.2822	19.1276	18.9036
16.3754	15.1278	15.8346	15.8981	15.9097	15.8469	15.6283
17.7831	17.7038	17.6102	17.5331	17.4462	17.3584	17.3251
16.9626	16.8053	16.6871	16.6573	16.5894	16.5597	16.4532
15.4687	15.4621	15.5183	15.5253	15.5843	15.6152	15.5730
16.5339	16.4029	16.4914	16.5809	16.6999	16.7433	16.7442
15.2374	15.1909	15.0067	14.9485	14.9348	14.9867	14.9416
16.5454	16.5209	16.4906	16.4611	16.4962	16.5575	16.5945
16.7552	16.5661	16.5054	16.5594	16.5325	16.5923	16.6329
16.4421	15.7090	15.3631	16.4187	16.3869	16.5614	16.6738
16.6429	16.5038	16.3754	16.5739	16.4478	16.4801	16.4382

Low Systimatic Risk

16.4664	16.4803	15.8209	15.8090	15.7872	15.7186	15.6810
17.4563	17.4073	17.2902	17.2930	17.4992	17.2856	17.1217
15.8533	15.8405	15.8185	15.9108	15.8678	15.9041	15.9509
16.5823	16.6307	16.6850	16.7377	16.7926	16.7975	16.5418
15.6744	15.6188	15.7210	16.3679	15.9374	15.9478	15.9441
16.8619	17.0594	17.2161	17.0753	17.2225	17.2477	16.7941
15.4112	15.3400	15.4737	15.6500	15.6299	15.7693	15.8054
15.5316	15.6062	15.5433	15.4816	15.4185	15.3172	15.3021
17.6872	17.6833	17.6084	17.6066	17.6032	17.6428	17.6587
17.3692	17.3956	17.4587	17.5156	17.5916	17.5671	17.5082
15.8842	15.7417	15.6076	15.5739	15.5303	15.5098	15.6019
15.9261	15.9288	15.9180	15.8572	15.8465	15.7829	15.8263
16.4859	16.5622	16.6101	16.7692	16.7588	16.9385	16.7029
14.4009	14.3789	14.3777	14.3651	14.3603	13.8740	13.8201
16.5554	16.5566	16.3914	16.1256	15.9812	15.9180	15.7703
19.3380	19.2050	19.4094	19.3634	19.2977	19.3262	19.8054
17.5689	17.3159	17.0866	16.8471	16.8909	16.7464	16.2460
16.0476	15.9795	16.0341	16.0318	16.1408	16.2497	16.2392
14.3691	14.5581	14.4682	14.5280	14.3211	14.3825	14.3546
15.6678	15.3176	15.7728	15.6762	15.5485	15.6264	15.7374